STUDIES
IN THE
LINGUISTIC SCIENCES

STUDIES IN THE LINGUISTIC SCIENCES

STUDIES IN THE LINGUISTIC SCIENCES

DEPARTMENT OF LINGUISTICS, UNIVERSITY OF ILLINOIS
URBANA, ILLINOIS 61801

TABLE OF CONTENTS

AN APPARENT ASYMMETRY IN THE FORMATION OF RELATIVE CLAUSES

IN MODERN HEBREW*

Peter Cole

I. The Asymmetry

There is an asymmetry in the form of relative clauses in Modern Hebrew (MH). Nominative and Accusative Relativized Noun Phrases (RNP's) may appear in pronominal or null form while all other RNP's can appear only in pronominal form. This asymmetry is illustrated in (1) - (5).[1]

(1) Nominative RNP

a. Ze   haish   she hu veaxi   patxu   misada   beyaxad.
   that (is) the man that he and my brother opened (a) restaurant together
'That's the man that he and my brother opened a restaurant.'

b. Ze   haish she maca et   hakelev sheli.
   that (is) the man that found acc. marker the dog of mine
'That's the man that found my dog.'

(2) Accusative RNP

a. Ze   haish   she hakelev sheli maca oto   al   hahar.
   that (is) the man that the dog of mine found acc. marker+him on the mountain
'That's the man that my dog found on the mountain.'

b. Ze   haish she   hakelev sheli maca al   hahar.
   that (is) the man that the dog of mine found on the mountain
'That's the man that my dog found on the mountain.'

(3) Dative RNP

a. Ze   haish she natati   lo   et   hasefer.
   that (is) the man that (I) gave dative marker+him acc. marker the book
'That's the man to whom I gave the book.'

b. *Ze   haish she   natati   et   hasefer.
   that (is) the man that (I) gave acc. marker the book

(4) RNP with <u>be</u> 'in'

a. Ze   haet   she   ani   kotev   bo.

 that   (is) the pen that I write in it

'That's the pen I write with.'

b. *Ze   haet   she   ani kotev.

  that (is) the pen that I write

(5) RNP with <u>al</u> 'upon'

a. Zot   hatmuna   she   ani ohev   lehistakel   aleha.

 that (is) the picture that I love to look   upon it

'That's the picture I love to look at.'

b. *Zot   hatmuna   she   ani   ohev lehistakel.

  that (is) the picture that I love to look

    It might be hypothesized that the asymmetry shown in (1) - (5) is due
to restrictions on the rule of Relativized Noun Phrase Deletion (RND) in
MH. RND optionally deletes a relativized noun phrase under identity with
the head noun phrase of the relative clause.[2] This hypothesis would claim
that the application of RND is restricted to Nominative and Accusative RNP's.
I shall argue that such a hypothesis is incorrect. Not only can the asym-
metrical distribution of deletion as a relativization strategy in MH be
explained without restricting the environment of RND, but an explanation
of this asymmetry in terms of restrictions on RND misses important general-
izations regarding the interaction of RND and other rules of MH grammar.
    It is claimed in this paper that the asymmetry results from the inter-
action of RND with two rules affecting the appearance of case markers in
surface structure, and with a constraint against the appearance of pre-
positions when their objects have been deleted. The two rules which are
required to generate case markers in the appropriate environments are Case
Marking (CM) and <u>Et</u> Deletion (ED). A Constraint Against Preposition Strand-
ing (PSC) is also necessary. I shall argue that the apparent inapplicabil-
ity of RND to RNP's other than nominatives and accusatives is due to the
fact that RND results in preposition stranding with non-nominative or ac-
cusative RNP's. In the sections which follow, I shall show how CM and ED

apply to generate the correct case markings in environments other than
relative clauses. Examples of the operation of PSC will also be given. I
shall then provide derivations demonstrating how the asymmetry illustrated
by (1) - (5) results from the interaction of CM, ED, and PSC with RND.
II. Case Marking and ET Deletion

   The superficial distribution of case markers in MH is as follows:
Nominative NP's receive no overt case marker in any environment. This
can be seen from (6).

(6) Yeladim   ohavim leexol.
    children   love to eat
'Children love to eat.'

Accusative noun phrases are preceded by the preposition et[3] if the noun is
definite[4]. Otherwise no overt case marker appears.

(7) a. Raiti   et   Miriam etmol.
       (I) saw acc. marker   Mary   yesterday
'I saw Mary yesterday.'

b. *Raiti Miriam etmol.
   (I) saw Mary yesterday

(8) a. *Raiti et   ec   yafe   etmol.
        (I) saw acc. marker tree beautiful yesterday

b. Raiti   ec   yafe   etmol.
   (I) saw (a) tree beautiful   yesterday
'I saw a beautiful tree yesterday.'

   Dative noun phrases are preceded by the preposition le whether
definite or not.

(9) a. Natati   et   hasefer   layeled.
       (I) gave acc. marker the book dat. marker the child
'I gave the book to the child.'

b. Natati   et   hasefer   leyeled.
   (I) gave acc. marker the book dat. marker (a) child
'I gave the book to a child.'

It is unclear whether certain instances of be, al, and other prepositions
should be interpreted as case markers and therefore inserted by the rule of
Case Marking discussed below. In any case, the conditions on the appearance
of those prepositions are parallel to these on le in that they appear be-
fore both definite and indefinite noun phrases.

The case markers illustrated in (6) - (9) can be generated by two
rules: A cyclic rule of CM and a rule deleting et when it is not followed
by a definite noun phrase. CM marks subject noun phrases with a null case
marker, direct object noun phrases with the accusative case marker et, and
indirect object noun phrases with the dative case marker le. Certain verbs
are lexically marked as taking objects in cases other than those just men-
tioned: e.g. the direct object of laazor 'to help' receives the dative case
marker le.

In section V I show that CM should be treated as cyclic, and in section
VI I present reasons why CM and ED should be formulated as separate rules.
Thus, I shall not discuss these questions here.

Derivations exemplifying the application of CM and ED follow.

(10) Case Marking of Subject NP
a. Underlying String:[5]
  Hayeled haya sham
 the child was there

b. Output of CM:
  $\emptyset$ Hayeled haya sham
  the child was there

c. ED does not apply.

d. Surface String:
  Hayeled haya sham
  the child was there
'The child was there'.

(11) Case Marking of Definite Direct Object NP

a. Underlying String:

  Ani   raiti Yoxanan

  I   saw   John

b. Output of CM:

  Ani raiti   et   Yoxanan

   I saw   acc. marker John

c. ED does not apply.

d. Surface String:[6]

  Raiti   et   Yoxanan.

  (I) saw acc. marker John

'I saw John.'

(12) Case Marking of Indefinite Direct Object NP

a. Underlying String:

  Ani raiti yeled

   I saw (a) child

b. Output of CM:

  Ani raiti   et   yeled

   I saw   acc. marker (a) child

c. Output of ED:

  Ani raiti yeled

   I saw (a) child

d. Surface String:

  Raiti   yeled.

 (I) saw (a) child

'I saw a child.'

(13) Case Marking of Indirect Object NP

a. Underlying String:

  Ani hirbacti hakelev[7]

   I hit   the dog

6

b. Output of CM:
 Ani hirbacti   la   kelev
  I   hit   dat. marker the dog

c. ED does not apply.

d. Surface String:
 Hirbacti   la kelev.
  (I) hit dat. marker the dog
'I hit the dog.'

     It has been seen that CM assigns case markers to noun phrases on the
basis of grammatical relations or lexical marking. Prepositional accusative
case markers are deleted when the noun phrase is not definite. (But see
footnote 4.) Nominative noun phrases receive null case markers. Thus, on
the basis of CM and ED, only nominative and certain accusative noun phrases
appear without prepositional prefixes in derived structure.
III. Preposition Stranding Constraint
A constrain against the stranding of prepositions (PSC) must be posited for
MH. This constraint marks as ill formed any surface structure in which a
preposition appears without a nominal complement. The effects of PSC on
the formation of wh-questions are illustrated in (14) - (15).

(14) Wh-Question Formation (WQF)
a. Al mi ata xoshev?
  upon who you think
'Whom are you thinking about?'

b. Lemi   natata   et   hasefer?
  to who (you) gave acc. marker the book
'To whom did you give the book?'

c. Bema ata   kotev?
   in what you write
'What are you writing with?'

(15) a. *Mi ata xoshev al?
   who you think upon

b. *Mi natata   et   hasefer   le?
  who (you) gave acc. marker the book to

c. *Ma ata kotev be?
what you write in

The sentences of (14) - (15) show that PSC applies to WQF.

    The following sentences show the applicability of this constraint to
Topicalization (TOP) (16 - 19) and Relative Pronoun Preposing (RPP) (20)-
(23).

(16) Topicalization
a. Ani   xoshev al Miriam.
   I   think   upon Mary
'I am thinking about Mary.'

b. Al Miriam ani xishev.
   upon Mary   I   think
'About Mary I am thinking.'

c. *Miriam ani xoshev al.
   Mary   I think upon

(17) a. Natata   et   hasefer   leMiriam?
      (you) gave acc. marker the book to Mary
'You gave the book to Mary?'

b. LeMiriam   natata   et   hasefer?
  to Mary (you) gave acc. marker the book
'To Mary you gave the book?'

c. *Miriam natata   et   hasefer   le?
  Mary (you) gave acc. marker the book to

(18) a. Ani kotev beet.
       I write in pen
'I am writing with a pen.'

b. Beet ani kotev.
   in pen I write
'With a pen I am writing.'

c. *Et ani kotev be
pen   I write   in

(19) a. Ani kotev   et   hamixtav.
       I   write acc. marker the letter
'I am writing the letter.'

b. Et   hamixtav ani kotev.
  acc. marker the letter I write
'The letter I am writing.'

c. *Hamixtav ani kotev   et.
  the letter I write acc. marker

(20) Relative Pronoun Preposing
a. Zot habaxura she ani xoshev aleha.
  that (is) the girl that I think upon her
'That is the girl that I think about.'

b. Zot habaxura she aleha ani xoshev.
   that (is) the girl that upon her I think
'That is the girl that I am thinking about.'

c. *Zot habaxura she hi ani xoshev   al.
  that (is) the girl that she I think upon

(21) a. Zot   habaxura she   natati   la   et   hasefer.
     that (is) the girl that (I) gave dat. marker her acc. marker the book
'That is the girl I gave the book to.'

b. Zot habaxura she   la   natati   et   hasefer.
  that (is) the girl that dat. marker her (I) gave acc. marker the book
'That is the girl to whom I gave the book.'

c. *Zot   habaxura she hi   natati   et   hasefer   le.
  that (is) the girl that she (I) gave acc. marker the book to

(22) a. Ze haet   she katavti   bo.
        that (is) the pen that (I) wrote in
'That is the pen I was writing with.'

b. Ze   haet   she bo katavti.
  that (is) the pen that in it (I) wrote
'That is the pen with it I wrote.'

c. *Ze   haet she hu katavti be.
  that (is) the pen that it (I) wrote in

(23) a. Ze   hamixtav she   katavti oto.
      that (is) the letter that (I) wrote acc. marker it
'That is the letter that I wrote.'

b. Ze   hamixtav she   oto   katavti.
  that (is) the letter that acc. marker it (I) wrote
'That is the letter which I wrote.'   .

c. *Ze   hamixtav she hu katavti   et.
  that (is) the letter that it (I) wrote acc. marker

    Examples (14) - (23) are evidence that PSC blocks the stranding of pre-
positions by WQF, TOP, and RPP. The same constraint applies to the output
of RND. This can be seen from examples (24) - (27).

(24) a. Zot habaxura she ani xoshev   aleha.
      that (is) the girl that I think upon her
'That is the girl I think about.'

b. *Zot   habaxura she ani xoshev   al.
   that (is) the girl that I think   upon

(25) a. Zot habaxura   she natati   la   et   hasefer.
      that (is) the girl   that (I) gave dat. marker her acc. marker the book.
'That is the girl to whom I gave the book.'

b. *Zot habaxura   she natati   le   et   hasefer.
  that (is) the girl that (I) gave dat. marker acc. marker the book

(26) a. Ze   haet   she katavti   bo.
   that (is) the pen that (I) wrote in it
'That is the pen I wrote with.'

b. *Ze   haet she   katavti   be.
  that (is) the pen that (I) wrote in

(27) a. Ze   hamixtav   she   katavti   oto.
     this (is) the letter that (I) wrote acc. marker it
'That is the letter I wrote.'

b. *Ze   hamixtav   she   katavti   et.
  this (is) the letter that (I) wrote acc. marker

The applicability of PSC to a deletion rule (RND), as well as to various movement rules (WQF, TOP, RPP) suggests that the Preposition Stranding Constraint cannot be formulated as a condition on the application of any particular rule or single group of rules.   Rather, the constraint would appear to apply to any surface structure in which a preposition appears without a nominal complement.[8]

IV.   The Derivation of Relative Clauses

I claimed in Section I that the apparent restriction on the applicability of RND is not the result of any limitation on the case of the noun phrases to which that rule applies. Rather, I contended that RND applies regardless of the case of the RNP. However, except with nominative and accusative RNP's, RND results in preposition stranding.

The derivations which follow show how preposition stranding is avoided for nominative and accusative noun phrases, but not for noun phrases of other cases.

IV.1 Relative Clauses with Nominative RNP's

Phrase marker (28) constitutes the input to the rules discussed above.

(28)


```
                          NP
              NP₁                    S₁
        habaxura         NP₂              VP
        'the girl'       hi          higia etmol
                        'she'       'arrived yesterday'
```
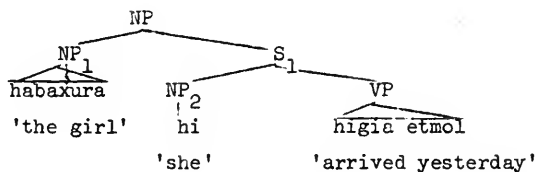
CM marks the subject of S_1 with the null case marker. RND deletes NP_2, as coreferential with NP_1. ED does not apply. The output of CM and RND is (29).

(29)

              habaxura   she higia etmol
              the girl   that arrived yesterday

PSC does not apply to (29). Thus, the surface structure corresponding to (29) is grammatical.

IV.2 Relative Clauses with Accusative RNP's

Phrase marker (30) is the input to the rules in question.

(30)


```
                          NP
              NP₁                 S₁
        hayeled           NP       VP
                          ani   V      NP₂
        'the boy'        'I'   raiti   hu
                               'saw'   'he'
```
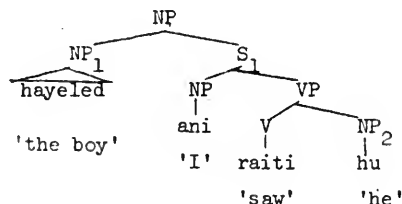
Case marking applies to NP_2 marking hu as accusative <u>et-hu</u> (later spelled out as <u>oto</u> if not deleted). RND optionally applies deleting <u>hu</u> of NP_2. As a result of the deletion of <u>hu</u>, <u>et</u> no longer precedes a definite noun phrase. Therefore, ED deletes <u>et</u> of NP_2. The output of these rules is (31), which does not violate the preposition stranding constraint.

(31)   hayeled she ani raiti
                  the child that I   saw

An alternative derivation, in which RND does not apply, is also well formed. If, after application of CM, RND does not apply, the application of ED is blocked. The output of the derivation is (32), corresponding to surface structure (33).

(32) hayeled   she ani raiti ¡ et-hu
      the boy that   I   saw   acc. marker he

(33) hayeled she raiti oto
      the boy that (I) saw him
'the boy whom I saw'

No violation of preposition stranding is found in (32); thus (33) is well formed.

IV.3 Relative Clauses with Dative RNP's

Consider the derivation applying to (34)

(34)
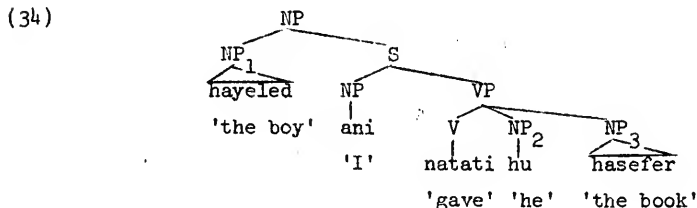
CM applies to NP_2 affixing the dative marker le. (I shall ignore NP_3 as irrelevant here.) The optional rule of RND deletes hu of NP_2 leaving the case marker le. There is no rule deleting dative case markers analogous to the ED (which deletes accusative case markers). Thus, the output of the derivation is the ungrammatical (35), which violates the preposition stranding constraint.

(35) *hayeled she ani natati   le   et   hasefer
     the boy   that I   gave   dat. marker acc. marker   the book

In contrast to the derivation just outlined, if RND is not applied, the output is a grammatical relative clause:

(36) hayeled she   natati   lo   et   hasefer
     the boy that (I) gave dat. marker him acc. marker the book
'the boy to whom I gave the book'

This is because in the derivation without RND hu of NP_2 in (36) is not de-
leted. Thus, the violation of the PSC seen in (35) does not take place.
IV.4 RNP's Preceded by Prepositions Other than et and le.

There is no rule analogous to ED which could prevent preposition strand-
ing in the derivation of relative clauses with prepositions other than et.
Thus, the derivation of relative clauses when the RNP is preceded by a pre-
position other than et or le is parallel to that of relative clauses with
dative RNP's. Just as with le, the application of RND to RNP's preceded by
prepositions other than et and le leads to ill formed relative clauses con-
taining stranded prepositions. No example is given because the derivation
is identical in all relevant respects to that given for dative RNP's.

V. Rule Interaction

I have shown that the interaction of CM, RND, ED, and PSC as formulat-
ed in previous sections correctly predicts the possibility of deleting
nominative and accusative relativized noun phrases and the impossibility of
deleting other relativized noun phrases. I should like to turn now to an
examination of the interaction among these four syntactic processes. I shall
assume that the use of extrinsic rule ordering is to be taken as evidence
against an analysis. The absence of a need for extrinsic ordering will be
interpreted as corroborative.

The constraint against preposition stranding must be ordered after all
three syntactic rules. CM inserts prepositions which, as a results of a
later rule, are subject to stranding. RND must be ordered before PSC because,
by deleting RNP's, RND can strand prepositions. (Movement rules like WQF,
TOP, and RPP must also precede PSC for the same reason.) ED, on the other
hand, must precede PSC because by deleting a class of prepositions it pre-
cludes the application of PSC.

I have proposed that PSC is a constraint applying to surface structure
similar to the surface structure constraints noted by Perlmutter (1971).
Since surface structure constraints-by their nature-have access only to the
output of all syntactic rules, the ordering of PSC requires no statement of

extrinsic ordering.

RND is crucially ordered with respect to CM. If, in the case of non-nominative or accusative RNP's, RND applies before CM, ungrammatical relative clauses are generated.[9] Consider derivations (37), in which RND is assumed to apply before CM.

(37) a. Underlying String:

haish   ani   natati   hu   sefer
.the man   I·   gave ʼ   he   book

b.   Output of RND:

haish   ani   natati   sefer
the man   I   gave   the book

(37b) does not fulfill the structural description of CM. Thus, the preposition le is not introduced and the ungrammatical relative clause (38) is incorrectly generated by the rules of the grammar.

(38) *haish   she   natati   sefer
the man   that (I) gave book
'the man that I gave a book'

Note that because no preposition is introduced in (37), (38) cannot be blocked by PSC. Compare derivation (37) with derivation (39), in which CM is ordered before RND.

(39) a. Underlying String:

haish   ani natati   hu sefer
the man   I gave   he book

b.   Output of CM:

haish   ani natati   le-hu   sefer
the man I   gave dat. marker he book

c.   Output of RND:

*haish   ani   natati   le   sefer
the man   I   gave   dat. marker book

String (39c) violates PSC, correctly yielding an ungrammatical output.

The fact that CM must apply prior to RND does not imply that CM is extrinsically ordered before RND. If, for example, CM is cyclic and RND is postcyclic, the principle of the cycle would result in the application of RND after CM without the need for an extrinsic ordering statement. I shall show below that there is reason to believe that this is indeed the correct analysis. There is evidence showing that CM is neither precyclic nor postcyclic.[10] Thus, subject to certain reservations that would not affect the present discussion, we may assume CM to be cyclic.[11] There is some reason to believe that rules of relativization are postcyclic.[12] Thus, the principle of the cycle apparently accounts for the ordering of CM and RND.

I shall now turn to the evidence that CM is neither precyclic nor postcyclic. In colloquial speech, certain causative verbs appear in surface structure with two accusative objects.

(40) Hilbashti   et   Dov   et   haxulca   haxi   yafa   shelo
  (I) caused to wear acc. marker Dov acc. marker the shirt most beautiful of hi
'I had Dov wear his prettiest shirt.'

Sentence (40) appears to derive from an underlying structure similar to that of (41).[13]

(41)
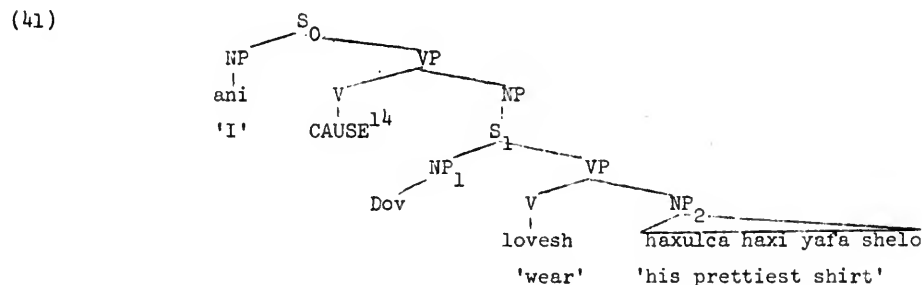
A rule of Verb Raising, the details of which I discuss elsewhere,[15] maps the two clause structure of (41) onto a single clause in derived structure.

If case marking is cyclic, the accusative marking of both noun phrases of (40) is automatically accounted for. Case marking applies to NP_2 on the S_1 cycle marking the direct object of that clause accusative. Verb raising

applies on the S_0 cycle making NP_1 the derived direct object of the main clause. Case marking then applies to NP_1 marking that noun phrase accusative.

It is of interest to note that NP_2 appears not to be a direct object in derived structure. Passivization of Modern Hebrew is in general restricted to direct objects.[16] Although passivization may be somewhat less than fully acceptable when applied to either of the accusative noun phrases of (40), passivization of the noun phrase corresponding to NP_1 in (41) is far better than passivization of the noun phrase corresponding to NP_2.

(42) a. Dov hulbash   et   haxulca   haxi   yafa   shelo.

   Dov (passive) caused to wear acc. marker the shirt most beautiful of him

'Dov was made to wear his prettiest shirt.'

b. *Haxulca   haxi yafa shel Dov hulbesha   oto.

   the shirt most beautiful of Dov caused to wear acc. marker + he

Thus, NP_1 and not NP_2 is the direct object in derived structure.

While cyclic application of CM accounts for the double accusative in causative sentences like (40) both precyclic and postcyclic application of CM fail to assign accusative case to the correct noun phrases. If CM were applied precyclically, only the underlying direct object of S_1, NP_2, would receive accusative case. NP_1 is subject of S_1 prior to the application of the cycle and, therefore, would not be marked accusative. The postcyclicity of CM is precluded as well. If CM was postcyclic, only NP_1 would receive a accusative case. This is because at this stage in the derivation only NP_1 is a direct object. Thus, CM would appear to be cyclic (but see footnote 11) and therefore to apply prior to RND without the need for an extrincic ordering statement.[17,18] No other candidates for extrinsic ordering may be found among the rules presented above.[19]

VI. Alternative Analysis: Et Deletion versus Conditions on Et Insertion

In this section two possible alternative analyses-Alternative Analysis One (AAI) and Alternative Analysis Two (AAII)-will be considered and rejected. In both altenative analyses no rule of ED is posited. Rather, CM is modified in such a way that et is introduced only before definite noun phrases.[20] Despite the initial attractiveness of these alternative analyses, I shall contend that separate rules of CM and ED are called for.

Let us consider first AAI, which is identical to my analysis of Sections I-IV except that there is no rule of FD, and, in the case of accusative noun phrases, the case marker is inserted only before definite NP's. I shall call this modified rule of case marking Restricted Case Insertion (RCI).

The evidence against RCI comes from the interaction between RCI and RND. Consider the ordering of the two rules necessary to generate correctly relative clauses like (43).

(43)   hadira   she   kaniti

   the apartment that (I) bought

'the apartment I bought'

In order to produce (43), RND must apply prior to RCI as in derivation (45), rather than subsequent to RCI as in derivation (44).

(44)   a. Underlying string:

      hadira   ani   kaniti   hi

    the apartment I   bought   it

      b.   Output of RCI:

    hadira   ani   kaniti   et-hi

   the apartment I bought acc. marker it

      c.   Output of RND:

    hadira   ani   kaniti   et

    the apartment I bought   acc. marker

      d.   Surface string:

   hadira she   kaniti   et

   the apartment that (I) bought acc. marker

(45) a. Underlying string:

  hadira   ani   kaniti   hi

the apartment I bought   it

      b. Output of RND:

  hadira   ani   kaniti

the apartment I   bought

      c. RCI does not apply.

      d. Surface string:

  hadira   she kaniti

the apartment that (I) bought

'the apartment I bought'

In order to produce the correct output (45d, not 44d), it is

necessary to reverse the ordering of case marking and RND posited

previously. RCI must apply after RND in order to generate (43). This

is because a rule of et deletion is not available in order to prevent

preposition stranding in derivations like (44). As a result of the

hypothesized nonexistence of a rule like ED, RCI must be ordered at a

stage in the derivation when its structural description is not met:

i.e. when no definite direct object is present. The absence of a

definite direct object blocks the application of RCI, thereby producing

the correct output.

Consider now the ordering of RCI and RND necessary to account for

relative clauses with prepositions other than et, e.g. (46).[21]

(46) a. haisha   she   azarti   la.

  the woman   that (I) helped   dat. marker her

'the woman I helped'

b. *haisha   she   azarti

the woman that   (I) helped

In order to correctly predict the facts of (46), RCI must apply before
RND as in (47), rather than after RND as in (48).

(47) a. Underlying string:

haisha   ani   azarti   hi

the woman   I   helped   her

   b. Output of RCI:

haisha   ani   azarti   le-hi

the woman   I   helped   dat. marker her

   c. Output of RND:

haisha   ani   azarti   le

the woman   I   helped   dat. marker

   d. Surface string:

haisha   she   azarti   le

the woman   that (I) helped   dat. marker

(48) a. Underlying string:

haisha   ani   azarti   hi

the woman   I   helped   her

   b. Output of RND:

haisha   she   ani   azarti

the woman   that   I   helped

   c. RCI does not apply.

   d. Surface string:

haisha   she   azarti

the woman   that (I) helped

Derivation (47), in which RCI is ordered prior to RND, produces a
surface string in which a stranded preposition le is found. The output
is marked as ill formed by PSC. Thus, the ordering of RCI before RND
(derivation (47)) correctly predicts that relative clauses like (46b)
are ungrammatical since the set of rules provides no derivation for such
relative clause. If, however, RND is ordered before RCI, as in (48),
a derivation for the ungrammatical (46b) is provided. Note that the
undesirable failure of RCI to apply in (48) has the same explanation
as the desirable failure of RCI to apply in (45). Once the object
noun phrase has been deleted, the structural description of RCI cannot
be met. That is, an ordering contradiction results from the replacement
of ED by limitations on the application of case marking in AAI. The
contradiction derives from the need to order RCI after RND for
accusative noun phrases (in order to prevent preposition stranding)
and before RND for all other non-nominative noun phrases (in order to
allow preposition stranding and thereby block ungrammatical relative
clauses). Therefore, AAI must be rejected.

It is possible, however, to modify AAI in such a way as to eliminate
the ordering contradiction. This modified version, AAII, does not suffer
from flaws as serious as those of AAI, but the analysis has certain
difficulties that lead one to prefer an et deletion analysis (EDA), such
as was proposed in Sections I-IV.

The ordering contradction found in AAI is resolved in AAII by
dividing RCI into two rules: a general case marking rule (GCM), applying
to non-accusative noun phrases, and an accusative restricted case marking
rule (ARCI), applying only to definite noun phrases. GCM is ordered

before RND and ARCI after RND. Derivations (49) and (50) show that AAII
correctly permits the generation of (43), where deletion of an accusative
relativized noun phrase has taken place, but does not permit the deletion
of non-accusative relativized noun phrases, for example, in (46b).

(49) a. Underlying String:

 hadira ani kaniti hi

the apartment I bought it

        b. GCM does not apply.

        c. Output of RND:

 hadira ani kaniti

the apartment I bought

        d. ARCI does not apply.

        e. Surface String:

 hadira she kaniti

the apartment that (I) bought

'the apartment I bought'

(50) a. Underlying String:

 haisha ani azarti hi

the woman I helped her

        b. Output of GCM:

 ha isha ani azarti le-hi

the woman I helped   dat. marker her

        c. Output of RND:

 haisha ani azarti le

the woman I helped dat. marker

d. ARCI does not apply.

e. Surface String (blocked by PSC):

haisha she azarti le

the woman that (I) helped dat. marker

Although AAII succeeds in generating relativized noun phrases
of the correct form, there is evidence pointing to the conclusion that
this analysis is incorrect. I shall cite two reasons to prefer EDA to
AAII.

The first objection to AAII is based on general considerations of
simplicity in grammar. AAII aviods the ordering contradiction of AAI
by dividing case marking into two processes, and by ordering the two
rules in different fashions with respect to another rule in the grammar
(RND). Thus, AAII is a more complex and, all other factors equal, a
less highly valued analysis than AAI. (Of course, other factors are
not equal. AAI fails to generate the correct forms.) Let us compare
EDA and AAI. It will be seen that EDA and AAI are equally simple
analyses. AAII is more complex than AAI, and, therefore, AAII is more
complex than EDA. In the absence of empirical evidence to the contrary,
EDA is to be preferred to AAII.

In AAII and EDA there are three factors which determine the form
of relativized noun phrases. In EDA the factors are CM, RND, and ED.
In AAI there are also three factors: case marking, a restriction on
accusative case marking limiting it to definite noun phrases, and
RND. It should be noted that the restriction on case marking is
simply the converse of ED. The two analyses require equivalent
derivational machinery, and therefore, are equivalent in simplicity.

AAII can be seen to be more complex than AAI and EDA because in AAII the same information must appear at two points in the derivation while it need appear at only one point in AAI and FDA. The repeated information is the conditioning factor for case marking, derived grammatical relations. Thus,unless AAII is of greater empirical adequacy than EDA, the latter analysis is to be preferred. The division of ARCI into two rules in AAII must be viewed as an ad hoc attempt to repair AAI when AAI was found to suffer from empirical inadequacies.

The second objection to AAII has to do with the empirical adequacy of the analysis. AAII fails to make the correct predictions with regard to data correctly predicted by EDA. According to AAII, accusative case marking is ordered after RND. Evidence was presented in Section V that RND is postcyclic. Thus, ARCI would have to be postcyclic as well. However, in Section V it was argued that accusative case marking must be cyclic. The cyclic analysis of accusative case marking provides a principled explanation for double accusatives in causative sentences like (40), and for the distribution of passive in related sentences like those of (42). Thus, the adoption of AAII necessitates the abandonment of apparently well-founded generalizations about the syntax of causative constructions.

I have presented two arguments, one a priori and the other empirical, that tend to support EDA rather than AAII. In the absence of any evidence for AAII, I conclude that an analysis which includes a separate rule of et deletion is to be preferred to an analysis incorporating a rule of et insertion limited to definite noun phrases.

VII. Additional Evidence

I have argued that the ungrammaticality of relative clauses like those of (49) is due to a constraint in MH against the stranding of prepositions.

(49) a. *hatmuna   she   histakalti   al
          the picture that (I) looked   upon
      b. *hakelev she hayeled hirbic   le
          the dog   that the boy   hit   dat. marker

In this section I shall present evidence directly supporting the claim.

If a rule deleting al and le in certain environments were added to the grammar of Hebrew, it is predicted that ungrammatical relative clauses like those of (50) would be grammatical.

(50) a. *hatmuna she   histakalti
          the picture that (I) looked
      b. *hakelev she hayeled   hirbic
          the dog   that the boy   hit

While no such rule is found in standard MH, G. Ben Horin (personal communication) has pointed out that a rule having a similar effect is found in many idiolects. The rule allows the deletion of prepositions preceding RNP's when the preposition is identical to the preposition preceding the head noun phrase of the relative clause. The rule of relativized prepositional noun phrase deletion (RPND) is illustrated in (51).

(51) a. Natati sefer le oto yeled   she   Miriam natna sefer.
          (I) gave (a) book dat. marker same boy that Mary gave (a) book
          'I gave a book to the boy to whom Mary gave a book.'

    c.   *Raiti et oto hayeled   she Miriam natna sefer.

    (I) saw acc. marker the boy   thet Mary gave   (a) book

    d. Raiti et oto   hayeled she Miriam natna   lo sefer.

    (I) saw acc. marker same the boy that Mary gave dat. marker him (a) book

    'I saw the very boy to whom Mary gave the book.'

RPND has the effect of preventing preposition stranding by deleting the

preposition of certain RNP's. Examples of RPND with <u>al</u>, 'on' and <u>be</u>

'in' are given in (52) and (53) below.

(52) a. Yashavta al   kise she Ben-Gurion yashav.

    (You) sat upon   chair that   Ben-Gurion sat.

    'You sat on a chair on which Ben-Gurion sat.'

    b. Yashavta al   kise   she Ben-Gurion yashav alav.

    (You) sat upon   chair that Ben-Gurion sat on it

    'You sat on a chair on which Ben-Gurion sat.'

    c. *Raita   kise she Ben-Gurion yashav.

    (You) saw   chair that Ben-Gurion   sat

    d. Raita   kise she Ben-Gurion yashav alav.

    (You) saw   chair that Ben-Gurion sat   on it

    'You saw a chair on which Ben-Gurion sat.'

(53) a. Histakalti bamilon she ata histakalta.

    (I) looked   at (the) dictionary that you looked

    'I looked at the dictionary that you looked.'

    b. Histakalti bamilon she ata   histakalta bo.

    (I) looked at (the) dictionary that you looked in it

    'I looked at the dictionary at which you looked.'

c. *Raiti et hamilon she ata histakalta.

(I) saw acc. marker the dictionary that you looked

d. Raiti et hamilon she ata histakalta bo.

(I) saw acc. marker the dictionary that you looked in it

'I saw the dictionary which you looked at.'

The existence of sentences like those of (51) - (53) corroborates the position taken in earlier sections of this paper that the asymmetry noted in (1) - (5) is not due to restrictions on RND, but rather to the interaction of a number of rules with the constraint against preposition stranding.

VIII. Summary of Conclusions

This paper is a synchronic study in the origin of an asymmetry in the relativization strategies available in Modern Hebrew. Subject to certain restrictions, nominative and accusative relativized noun phrases may appear as pronouns or as null forms in derived structure. Relativized noun phrases of other cases may appear only in pronominal form. This asymmetry is shown not to result from restrictions on the rule of Relativized Noun Phrase Deletion. Rather, Relativized Noun Phrase Deletion can apply to noun phrases of all cases. However, except for nominative and accusative relativized noun phrases, the derivation results in the stranding of a prepositional case marker. Preposition stranding is ungrammatical in Modern Hebrew.

Nominative noun phrases have a null case marker. Thus, deletion does not lead to preposition stranding in the case of nominative relativized noun phrases. In the case of accusative relativized noun phrases, the rule of Relativized Noun Phrase Deletion feeds a rule of

Et (accusative preposition) Deletion. This rule is justified in the
body of the paper. Et Deletion deletes the accusative case marker et
when the case marker is not followed by a definite noun phrase. This
is the same rule that governs the presence of the accusative case marker
in simple sentences. Et Deletion deletes the accusative case marker in
relative clauses if Relativized Noun Phrase Deletion has applied. This
is because the application of Relativized Noun Phrase Deletion creates
an environment in which et is not followed by a definite noun phrase.
As a result of Et Deletion, the application of Relativized Noun Phrase
Deletion in accusative relativized noun phrases does not result in
preposition stranding. The fact that no stranded prepositions result
from the deletion of nominative and accusative relativized noun phrases
explains why these noun phrases, but not relativized noun phrases of
other cases, may undergo deletion rather than pronominalization.

<div align="center">FOOTNOTES</div>

*Thanks are due to Gad Ben-Horin and Yael Ziv for their critical comments
on an earlier version of this paper, and to Aia Selinger for her patience
and good will in the preparation of the manuscript. The research for
this paper was funded in part by a Summer Stipend from the National
Endowment for the Humanities, by grants from the Research Board and the
Office of International Programs and Studies of the University of
Illinois, and by NSF Grant #Soc 75-00244. Their help is gratefully
acknowledged. An abridged version of this paper was presented at the
Third North American Conference on Semitic Linguistics, held in
conjunction with the 1975 Annual Meeting of the American Oriental Society.

[1]There is a strong tendency to prefer the null form of nominative RNP's
and a lesser tendency to prefer the null form of accusative RNP's.
Even in the case of nominative RNP's the pronominal form is known to
occur occasionally.

[2]I shall assume for the sake of simplicity that RNP's appear in pronominal
form in underlying structure. Thus, (i) would be represented as (ii).

(i) haish she raa   et   Yoxanan

   the man that saw acc. marker John

 'The   man that saw John'

ii   NP

      NP$_1$ S

    haish   NP$_2$ VP

   'the man'   hu V   NP

         'he'

              raa   Yoxanan

            'saw'   'John'
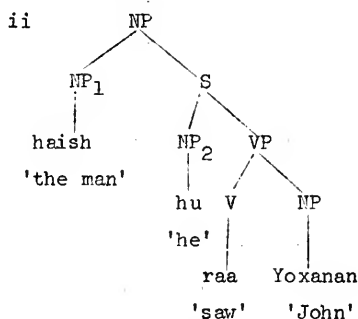
RND deletes NP$_2$ because it is coreferential with NP$_1$. The assumption
that RNP's are pronominal underlyingly can, I believe, be justified (cf.
Bach (1968) and Perlmutter (1972) where this issue is discussed.) In
any case, the assumption does not affect the claims made in this paper.

[3]I shall assume that the case marker et is a preposition because the
syntactic properties of this case marker are, with one exception, like
those of such prepositions as le 'dative case marker' (also 'locative
to'), al 'upon', and be 'in'. Et differs from other prepositions in that

its appearance is restricted in the manner described in the body of
the paper.

[4]The environment for the appearance of et is more complex than that
suggested in the body of the paper. While et does appear before all
definite NP's, it appears before some presumably indefinite noun phrases
as well:

(i) Et $\left\{\begin{array}{c} mi \\ ma \end{array}\right\}$ raita etmol?

 acc. marker $\left\{\begin{array}{c} who \\ what \end{array}\right\}$ (you) saw yesterday

$\left\{\begin{array}{c} \text{'Who} \\ \text{What} \end{array}\right\}$ did you see yesterday?'

(ii) Raiti et mishehu barexov etmol aval ani lo zoxer et mi
(I) saw acc. marker someone in the street yesterday but I don't remember
    acc.m. who

   'I saw someone in the street yesterday but I cannot remember who.'

     A detailed discussion is beyond the scope of this paper. Note, how-
ever, that the conditioning factor in (ii) cannot be specificity rather
than definiteness. The noun phrase sefer exad al rusit 'a book on
Russian' in (iii) must be specific because it is pronominalized with
hu 'it'. (See Hirschman (1972) for a discussion of this and other
tests for the specificity of indefinite noun phrases.)
However, the noun phrase may not be preceded by et.

(iii) a. Ani mexapes sefer exad al rusit. Hu haya al hashulxan etmol.

     I look for (a) book one upon Russian. It was upon the table yesterday
 'I am looking for a book about Russian. It was on the table yesterday.'

b. *Ani mexapes   et   sefer exad al rusit. Hu haya al hashulxan etmol.

   I look for acc. marker book one on Russian. It was on the table yesterday

[5]The use of underlying and surface strings rather than structures is for

expository purposes only. Syntactic rules are assumed to be sensitive

to structure and are not limited to properties of the string.

[6]The surface string in this and other examples reflects the application

of rules irrelevant to the present discussion.

[7]The verb leharbic 'to hit' is lexically marked as taking dative direct

objects.

[8]The only exceptions to the constraint that I am aware of are time

expressions in informal speech. Sentence (ii) is a well formed reply

to (i).

(i) Ma hashaa?

  what (is) the hour

 'What time is it?'

(ii) xamisha le

     five   to

'Five to'

The preposition lifney 'before' and axarey 'after' may also be stranded

in certain highly restricted contexts in which the complement of the

preposition is fully predictable.

[9]The ordering of RND before CM does not result in ill-formed output when the RNP is nominative or accusative.

[10]Nor last cyclic.

[11]There are two additional possibilities:

(1) CM is a global rule with a cyclic structural description and a postcyclic application similar to that proposed by Andrews (1971) for Ancient Greek. In this case only the structural description of CM would be crucially ordered with respect to RND. If it is assumed that RND is postcyclic, a cyclic structural description for CM would guarantee the correct output without the need for an extrinsic ordering statement.

(2) CM is an anywhere rule, applying whenever its structural description is met. If it is assumed that obligatory anywhere rules apply prior to optional rules (presumably because the anywhere rule must apply in this environment while the optional rule may not), CM automatically applies before RND. But if CM is presumed to be an anywhere rule, and if it is not assumed that obligatory anywhere rules apply prior to the application of optional rules, an extrinsic ordering statement is needed.

[12]See Postal 1970, 1971. Note, however, that Postal's arguments may not be applicable to Hebrew, in which case the possibility remains that RND is cyclic and an extrinsic ordering statement is required. Assuming that Postal's arguments are valid for English, in the absence of evidence to the contrary it should be assumed that rules of relativization are universally postcyclic.

[13]See Aissen 1974 a, b for a general discussion of the derivation of causatives like (40) in a number of languages.

[14]CAUSE is to be interpreted as an abstract predicate of causation rather than an actual lexical item.

[15]Cole (in preparation).

[16]Passivization applies to dative direct object like the objects of laazor 'help' as well as to accusative direct objects. Cf. (i) and (ii).

    (i) a. Ani azarti layeled.

         b. *Ani azarti et hayeled

    (ii) c. Hayeled neezar bi.

The rule of passivization does not apply to dative indirect objects or to accusative noun phrases which are not direct objects.

[17]I should like to note in passing that the argument just given for the cyclicity of CM is also an argument for the cyclicity of verb raising. This would contradict the claim in Aissen 1974b that verb raising is universally precyclic. Assuming CM to be a cyclic rule, it must also be true that verb raising is cyclic. Since CM is cyclic and CM can apply prior to verb raising, verb raising cannot be precyclic. But CM can also apply after verb raising, so verb raising cannot be postcyclic. Therefore, verb raising must be cyclic.

[18]It might be suggested that the existence of sentences like (i)· constitutes evidence against the cyclic analysis of the double accusative in (40).

    (i) Hilbashti et Dov basveder haze.

    (I) caused to wear acc. marker Dov instru. marker the sweater this

    'I had Dov wear this sweater.'

However, I see no incompatibility between the cyclic analysis and the existence of sentences like (i). It is necessary to posit a rule mapping et onto be in certain environments. Such a rule may in fact be independently needed to account for be in (ii).

(ii) Dov lavush basveder.

Dov wear instru. marker the sweater

'Dov is wearing the sweater.'

Sentence (ii) is apparently derived from (iii).

(iii) Dov lovesh et hasveder.

Dov wear acc. marker the sweater

'Dov is wearing the sweater.'

Although the rule relating (iii) and (ii) is restricted to a relatively small number of verbs, this may be due to the fact that the verb form is pre-empted by a type of passive construction (the paul passive). In sentences like (i), the verb form has not been pre-empted. This could explain the fact that the structure illustrated by (i) is possible with a wider range of verbs than that illustrated by (ii).

[19]Both CM and RND must apply before ED. This is not an extrinsic ordering relationship, however, because CM and RND have the effect of creating the environment in which the structural description for ED is met. Thus, CM and RND are intrinsically rather than extrinsically ordered before ED.

For general discussion of the theoretical issues involved in rule ordering, see Kisseberth (1973) and Cole (1973). Although these papers deal with rule ordering in phonology, much of what is said is applicable to syntx as well.

[20]It should be noted that the acceptance of the alternative analyses is consistent with the general hypothesis of this paper --- that the asymetry. noted in Section I is due to PSC rather than to restrictions on the applicability of RND. The alternative analyses differ from the analysis that I proposed earlier with respect to the derivational mechanism by means of which the stranding of et is avoided. I have claimed that a rule of et deletion is involved while the alternative analyses claim that et stranding is avoided by restrictions preventing the insertion of et in an environment where stranding would result.

[21]A derivation with le will be given. The same facts hold for all prepositions other than et.

REFERENCES

Andrews, Avery D. 1971. "Case Agreement of Predicate Modifiers in Ancient Greek." Linguistic Inquiry 2: 127-152.

Aissen, Judith. 1974a. The Syntax of Causative Constructions. Unpublished Doctoral dissertation. Harvard University.

Aissen, Judith. 1974b. "Verb Raising." Linguistic Inquiry 5: 325-366.

Bach, Emmon. 1968. "Nouns and Noun Phrases." In E. Bach and R. T. Harms (eds.) Universals in Linguistic Theory, Holt, Rinehart and Winston, Inc., New York.

Cole, Peter. 1973. "Mutual Bleeding and the Ordering of Phonological Rules." In C. Kisseberth (ed.) Studies in Generative Phonology, Linguistic Research, Inc., Edmonton and Champaign.

Cole, Peter. In Preparation. "Verb Raising in Modern Hebrew."

Hirschman, Lynette. 1972. "Specific, Non-Specific, and Generic." Presented at the 1972 Annual Meeting of the Linguistic Society of America.

Kisseberth, Charles W. 1973. "Is Rule Ordering Necessary?" In B. Kachru et al (eds.) Issues in Linguistics: Papers in Honor of Henry and Renee Kahane, University of Illinois Press, Urbana.

Perlmutter, David M. 1971. Deep and Surface Structure Constraints in Syntax. Holt, Rinehart and Winston, Inc., New York.

Perlmutter, David M. 1972. "Evidence for Shadow Pronouns in French Relativization." In Paul M. Peranteau et al (eds.) The Chicago Which Hunt, Chicago Linguistic Society, Chicago.

Postal, Paul M. 1970. "On Coreferential Complement Subject Delation." Linguistic Inquiry 1:439-500.

Postal, Paul M. 1971. Cross-Over Phenomena. Holt, Rinehart and Winston, Inc., New York.

TIME TRAVEL or THE FUTURISTIC USE OF "TO GO"

Richard Neil Halpern

In his paper of 1971, "'Will' and 'Be Going To'", Rob-
ert Binnick argues for a difference in semantic import be-
tween the two future tense markers represented in his ti-
tle. In this work I shall accept the accuracy of Binnick's
observation and attempt to provide a semantic explanation of
the difference. I shall do this by suggesting a semantic ac-
count of the ability of the verb "to go" to indicate futuri-
ty. The difference in shade will fall naturally out of this
explanation. Then, to corroborate this explication of the fu-
turistic usage of "to go", I shall proffer evidence of a gen-
eral, global kind, distributional data, and, finally, applica-
tions to cases from natural language as pragmatic confirmation
of this proposal.

We should begin with Binnick's observation. He claims
that a higher degree of certainty is associated with the fu-
turistic marker "be going to" than with "will"; i.e., in sel-
ecting the former over the latter the speaker had made a strong-
er epistemic commitment to his claim. The proposed explanation
of this phenomenon consists of two parts. First, one notes
that the future tense indicated by "to go" is marked by a verb
in the present progressive tense. Moreover, the relevant par-
ticipant is a verb of motion. Thus, without probing beneath
the surface, one can interpret a futuristic construction with
"be going to" as involving the current progress toward some
future state of affairs: movement through time. Naturally, the
future state of affairs is semantically represented by a sen-
tential complement to the higher verb, "be going" (the addition-
al "to" in Binnick's title belongs to the lower S). At this
point, as a logical move, one would like to posit a purposive
clause as the complement S. However, sentences such as 1 dem-
onstrate that the futuristic "to go" stretches beyond the psy-
chological notion of intent and animacy restrictions:

1 The boulder is going to slide off the mount̲a̲i̲n̲.

Surely, no one would attribute design or motivation to a boul-
der.   Still, he can inform another that this psychologically
·barren e̲n̲t̲i̲t̲y i̲s g̲o̲i̲n̲g to do something.
      To account for the higher degree of certainty one need on-
ly appeal to the theory of nascence in the present, as mention-
ed in Binnick's paper. While "will" involves only a prediction
on the speaker's part, "be going" entails both a prediction and
the attitude that events are already tending toward such an even-
tuality.   In relying on the verb of motion to express futurity,
the speaker is thereby describing the evolution of the present
into the future.   In general terms, a state toward which events
or conditions are already tending or moving is thought to be
more likely than one which must be predicted without reference
to current dispositions and manifestations.

      Let us start our defense with evidence of a broadly based
nature. One is drawn toward a semantic explanation of the "be
going" future by the fact that a number of languages employ the
verb meaning "to go" for this extra duty: Latin--"ire"; Spanish--
"ir"; Italian--"andare"; French--"aller"; English--"to go".   In
addition, other verbs of motion can be used to indicate temporal
relationships. In French, the verb meaning "to come", "venir",
participates in a construction indicating the past tense: "venir
de jouer"="to have just played".   Literally, the French translates
as "to come from playing", and we note that the French verbs mean-
ing "to come" and "to go" complete the temporal symmetry: one goes
to or toward the future and one comes from or out of the past.[1]
Although pointing in the same temporal direction as "to go", the
English verb "to come" also participates in tense marking:

2 I'm coming to that.=I will be at that point.

Without indulging in an etymological analysis of its deriva-
tion from the motion verb, we observe the futuristic aspects
of "become":

3 Harry is becoming a father.

However little credit one wishes to give Harry, logically
one would say that Harry is temporally advancing toward the
state of being a father or father-hood.

For a second thrust, we note that the use of "to go" to
indicate the future tense is an instance of a more general
phenomenon, which can itself be explained by reference to the
analysis thus far proposed to account for futurity. Consid-
er 4:

4 Harry was going to kiss Mary.

Ostensibly, the higher verb is in the English imperfect tense,
but one observes the specific character of the conventional
reading of this sentence. The germane assertion is that at
some time in the past Harry has had the inclination to kiss
Mary; i.e., at some time in the past Harry was moving or ad-
vancing toward the state of kissing Mary. With human beings
such evolutionary processes can often be described with ref-
erence to desires and intentions. The only visible difference
between the usage in 4 and that employed in the representation
of futurity is in the tense of the copula. When "to be" is
in the present tense one is presently moving toward the future
state; when "to be" is in the past tense one was moving toward
the future state at some time in the past.

Thus, we have found that the use of "to go" to indicate
futurity is a facet of a more general phenomenon. Moreover,
when we factor out the components common to the two usages
mentioned, we find only the verb meaning "to go" and the pro-
gressive or participial marking. These two elements comprise

the foundation of our explanation of the futuristic usage of
"to go". In conjunction with such generalizing observations,
one may question the status of such expressions as "have been
going" and "had been going", but such an inquiry lies beyond
the scope of this paper.

Finally, one can point to pragmatic considerations for
support of our claim. As an instructive example, imagine a
situation in which one observes John donning his baseball cap,
picking up his bat and glove, and phoning a friend for a ride
to the ballpark. When we ask John what he is <u>doing</u> (present
progressive tense), he responds that he <u>is going</u> to play
baseball. Doubtless, John is referring to a future state of
affairs in so replying, but he has still managed to success-
fully answer our query with respect to the present: he is
presently in the state or presently participating in the act-
ivity of <u>going</u> to play baseball. Note the strangeness of
John's replying "I will play baseball" in the context of this
hypothetical situation.

Now consider the following problematic cases from Bin-
nick's paper:

5 I will kill Sam if you don't stop me.
6 I'm going to kill Sam if you don't stop me.

Binnick argues that 6 is much to be preferred in a situation
in which one is already actively killing Sam, say, by throt-
tling Sam's throat. This analysis is exactly what our ac-
count would predict. Next consider Jerry Morgan's example
sentences, taken from the same paper:

7 The next time you come, bring your wife.
8 OK, I will. (a promise in reply to the other's suggestion)
9 OK, I'm going to. (an expression of prior intention)

The notion of prior intention conforms perfectly with our

concept of "tending toward". Promising, on the other hand,
involves a speech act and implies nothing with regard to
prior or current progress toward some future state. Last,
consider R. Carter's example sentences, once again from
Binnick's 1971 paper:

10 I'll know that at five o'clock (speaker could know it
   now as well)
11 I'm going to know that at five o'clock. (speaker cannot
   know it now)

In 11 we once more note a process of moving toward a state,
in this case a state of knowledge. Since one is heading
toward the relevant state, he cannot at the time of the ut-
terance be in it. In 10 one can merely be predicting that
he will not have forgotten the germane item at or before
five o'clock (or that he will have reremembered it).

     Examination of these examples was designed to show
how the use of the futuristic "to go" can be explained by
reference to the progressive action or activity denoted by
the verb of motion. In each case, the speaker's intuitions
can be accounted for and the difference (between the uses
of "will" and "be going") explicated in the light of such
an interpretation.

     In conclusion, then, I have provided a semantic ex-
planation of the futuristic usage of "to go": briefly, the
motion verb in the present progressive tense signals cur-
rent progress toward some future state. I have utilized
this interpretation to account for the difference in epis-
temic import between the future tense markers "will" and
"be going", as observed by Robert Binnick. Finally, I
have proffered evidence of a general, distributional, and
pragmatic nature to support the substance of this analysis.
If this study raises any further questions, I think the

foremost would concern the regular use of figurative, metaphoric language in ordinary speech. Is this traveling into the future a metaphoric extension of the meaning of "to go"? Is it only a natural application of the sense already embedded in the concept of motion? And how are these questions decidable?

Footnotes

[1]After the writing of the body of this paper, Ladislav Zgusta pointed out to me that Talmy Givón had discussed the futuristic use of "to go" in his paper "Forward Implications, Backward Presuppositions, and the Time Axis of Verbs". Givón argues that the future tense arises as a consequence of the use of "to go" to express intent as in "I went (there) to get back my sousaphone". However, I find Givón's account of the futuristic usage of "to go" both insufficient and unnecessary. The notion of intent is unnecessary to account for the data because of sentences such as 1 above: The boulder is going to slide off the mountain". Surely one would not wish to attribute psychological intent to a boulder despite the grammaticality of 1. Thus, there are cases where the "to go" future arises where the imputation of intent is impossible: intent is not necessary for this occurrence of the future tense. The notion of intent is insufficient to explain the phenomenon because many if not most verbs admit of the intentional deployment noted by Givón without giving rise to the future tense: I screamed to get her attention; I danced to please them; I looked at it to appraise its worth, etc. Thus, the fact that a verb participates in purposive constructions is not sufficient to guarantee its participation in futuristic constructions. Moreover, the intentional analysis ignores a crucial aspect of the futuristic "to go": the use of the present progressive tense. The ordinary present does not yield futurity.

References

Binnick, Robert. 1971. "'Will' and 'Be Going To'". In papers from the 7th Regional Meeting, Chicago Linguistic society.

EVIDENCE FOR GLOBAL CONSTRAINTS:
THE CASE OF REFLEXIVIZATION IN HINDI-URDU

Yamuna Kachru
and
Tej K. Bhatia

1.0. Introduction.

The aim of this paper is to examine if the devices of transforma-
tional rules (Chomsky 1965) and global rules (Lakoff 1970) are adequate
to characterize the general principles by which a reflexive pronoun
in a Hindi-Urdu sentence is interpreted as coreferential with its
antecedent.[1] In this study, we shall first attempt to separate the
'emphatic' reflexive pronouns from the 'true' reflexive pronouns. Next,
a set of data that lends itself to an account of reflexivization in
Hindi-Urdu in terms of a cyclic transformational rule is presented and
discussed in detail. Finally, some data that suggest the preceding
hypothesis to be inadequate are examined and conclusions are drawn
as to the general principles that determine in which contexts an
antecedent-pronoun-relationship holds between a noun phrase and a
reflexive pronominal form. It is shown (section 3.1) that any such
general principle has to refer to more than one level of representation
in the derivation of the sentence, hence the data from Hindi-Urdu
supports the notion of global constraints. Lakoff (1970) discusses
several general principles that operate in various natural languages
that must mention two or even three distinct stages of a derivation.
Ross (1969) discusses some interesting cases where application of a
specific rule at a certain point in a derivation results in violation of
a constraint, but subsequent application of another specific rule at a
later stage of the derivation destroys the conditions that define the
violation, and hence, the completed derivation results in a more acceptable
surface structure. Postal (1972) presents a case of global constraint
on pronominalization in English which is similar to what we discuss in
this study. The data discussed in section 3.2, however, suggests that
it is essential to view global constraints not only as devices that look
back to the earlier stages of the derivation, but also as devices that may
look to later stages of the derivation for defining well-formedness

conditions. The claim that all conveniently cyclic rules, such as reflexivization, may be reformulated as post-cyclic global rules (Johnson 1974) is considered in 4.1. In conclusion, some of the theoretical implications of this study are discussed briefly.

1.1. Reflexive Pronominal Forms

Before proceeding with the description of reflexivization in Hindi-Urdu, we will introduce the reflexive pronominal forms in the language. According to the grammars of Hindi-Urdu, ap 'self' is both the emphatic and the true reflexive pronoun of Hindi (Guru 1920:80-82, Vajpeyi 1958: 1226). Certain other items, such as xud and sveyem also occur as emphatic reflexives (see 1.2 below). The 'true' reflexive ap 'self' has an oblique form apna, and a possessive form which is homophonous with the oblique. Sometimes a reduplicated form apne ap also occurs as a true reflexive (Guru, loc. cit.). The Hindi-Urdu grammarians do not clearly distinguish between true and emphatic reflexives. As the emphatic and true reflexives behave differently and can be separated clearly, we suggest below some criteria which are relevant for this purpose.

1.2. Emphatic vs. True Reflexive

The emphatic reflexive does not occur with indefinite noun phrases (NPs, hereafter) whereas indefinite NPs can be the antecedents of true reflexives, e.g.,

(1) *koi lerka $\begin{Bmatrix} \text{ap} \\ \text{xud} \\ \text{sveyem} \end{Bmatrix}$ tumse milne aya tha.

    a boy   self   you with to meet come had
    *a boy himself had come to see you.

(2) pitaji $\begin{Bmatrix} \text{ap} \\ \text{xud} \\ \text{sveyem} \end{Bmatrix}$ mujhe lene aege.

    father self me fetch will come
    Father himself will come to fetch me.

(3) koi vyekti apna kutta klas mẽ le aya he.
    a person self+possessive dog class in bring come has
    Someone has brought his dog into the class room.

(4) koĩ əpne ko yũ pəresǎn nəhĩ kərta.

anyone self obj.m. thus trouble does not

Nobody tortures himself in this fashion.

xud and svəyəm occur freely as emphatics, but not as freely as true
reflexives; e.g., they do not occur as true reflexives in case the
antecedent is either collective or plural. They also do not occur as
possesive reflexives, e.g.

(5) mohən $\begin{cases} \text{əpne ap} \\ \text{xud} \\ \text{svəyəm} \end{cases}$ ko calak səməjhta hɛ.

Mohan self obj.m. clever considers

Mohan considers himself clever.

(6) həm $\begin{cases} \text{əpne ap} \\ \text{*xud} \\ \text{*svəyəm} \end{cases}$ ko ek hĩ kɔm səmjhẽ.

We selves obj.m. one emph. nation may consider

We should consider ourselves one nation.

(7) vəh $\begin{cases} \text{əpnĩ} \\ \text{*xud kĩ} \\ \text{*svəyəm kĩ} \end{cases}$ kitab pərh rəha tha.

He self+possessive book read -ing was

He was reading his book.

The true reflexive can be questioned, the emphatic cannot be, e.g.,

(8) syǎm əpne ko kos rəha tha.

Shyam obj.m. curse -ing was

Shyam was cursing himself.

(9) syǎm kis ko kos rəha tha?

Shyam who obj.m. curse -ing was

Who was Shyam cursing?

(10) mohən ap ram ke sath jaega.

Mohan self Ram with will go

Mohan himself will go with Ram.

(11) *mohən kɔn ram ke sath jaega?

Mohan who Ram with will go

* $\begin{cases} \text{Mohan who} \\ \text{Who Mohan} \end{cases}$ will go with Ram?

This is not surprising in view of the fact that emphatic reflexives are functionally identical with their antecedents whereas the true reflexives are not. The emphatic reflexives will not be discussed any further in this paper. Henceforth, the term reflexive in this paper refers to true reflexives only. As xud and sveyem are marginal, all the examples will have forms of ap in them.

2.0. Reflexivization Rule.

We will now examine the following set of data to tentatively characterize the process of reflexivization in Hindi-Urdu. The data are drawn from simple and complex sentences of the language. They are consistent with the claims that reflexivization in Hindi-Urdu (a) obeys the clause-mate constraint, (b) supports the cyclic principle of rule-application, and (c) allows forward application only. They are also consistent with principles A and B suggested in Cohen (1973).

Consider the following sentences.[2]

(12) ?maric ne maric ko svernmrig ka rūp diya.
Marich ag. Marich obj.m. golden deer of form gave
?Marich transformed Marich into a golden deer.

(12a) maric ne $\left\{ \begin{array}{l} \text{epne ko} \\ \text{*usko} \end{array} \right\}$ svern mrig ka rūp diya.

Marich ag. $\left\{ \begin{array}{l} \text{himself} \\ \text{*him} \end{array} \right\}$ golden deer of form gave

Marich transformed $\left\{ \begin{array}{l} \text{himself} \\ \text{*him} \end{array} \right\}$ into a golden deer.

(13) ?sīta raste bher sīta ke gehne giratī geĩ.
Sita way all Sita of jewelry dropping went
?Sita kept dropping Sita's jewelry all the way.

(13a) Sīta raste bher $\left\{ \begin{array}{l} \text{epne} \\ \text{*unke} \end{array} \right\}$ gehne giratī geĩ.

Sita way all her jewelry dropping went
Sita kept dropping her jewelry all the way.

(14) ?jījī ne bheya ko bheya kī thalī me khana diya.
elder sister ag. elder brother obj.m. elder brother
of plate in food gave.
?Sister gave brother his food in brother's plate.

(14a) jɪjɪ ne bhɛya ko $\left\{\begin{array}{c} \text{*əpnɪ} \\ \text{unkɪ} \end{array}\right\}$ thalɪ mẽ khana diya.

       sister ag. brother obj.m. his plate in food gave

       Sister gave brother (his) food in his plate.

(12-14) exemplify the process of reflexivization in simple sentences.
Note that the second occurrence of the coreferential NP is reflexivized
in the above sentences provided the antecedent is the subject of the
sentence. (14a) is ungrammatical with <u>əpnɪ</u>, as the antecedent is not the
subject of the sentence.

    Next, examine the following complex sentences. We are deliberately
confining ourselves·at this point to those sentences in which both the
main and the subordinate clauses are clearly recognizable:[3]

    (15) ?indira ne kəha ki indira səb kam kər legɪ.

       Indira said that Indira all work will get done

       ?Indira said that Indira will get all the work done.

(15a) indira ne kəha ki $\left\{\begin{array}{c} \text{*ap} \\ \text{vəh} \end{array}\right\}$ səb kam kər legɪ.[4]

       Indira ag. said that she all work will get done

       Indira said that she will get all the work done.

    (16) ?prəkaš ne pũcha ki prəkaš ka bhaɪ kəb aega.

       Prakash ag. asked that Prakash of brother when will come

       ?Prakash asked when Prakash's brother will come.

(16a) prəkaš ne pũcha ki $\left\{\begin{array}{c} \text{*əpna} \\ \text{uska} \end{array}\right\}$ bhaɪ kəb aega.

       Prakash ag. asked that his brother when will come.

       Prakash asked when his brother will come.

    (17) ?əgər raj aya to raj ko bəhut xusɪ hogɪ.

       if Raj came then Raj to much pleasure will happen

       ?If Raj came, Raj will be happy.

(17a) əgər raj aya to $\left\{\begin{array}{c} \text{*əpne} \\ \text{usko} \end{array}\right\}$ ko bəhut xusɪ hogɪ.

       if Raj came then him much pleasure will happen

       If Raj came, he would be happy.

    (18) ?jəb sɪma aegɪ təb sɪma kɪ bəhən bhɪ aegɪ.

       when Sima will come, then Sima of sister too will come.

       ?When Sima comes, Sima's sister will come, too.

(18a) jəb sĩma aegi təb $\begin{Bmatrix} \text{*əpnĩ} \\ \text{uskĩ} \end{Bmatrix}$ bəhən bhĩ aegĩ.

      when Sima will come then her sister too will come

      When Sima comes, her sister will come too.

The sentence in (15) and (16) provide evidence that reflexivization
does not go down into subordinate clauses, i.e., NP_i reflexives NP_j
only if the S that immediately dominates NP_i also dominates NP_j.
(17) and (18), in which the subordinate clause precedes the main clause,
confirm that for pronominalization, only the precede-follow relation-
ship is important, i.e., NP_i pronominalizes NP_j if NP_i precedes NP_j.[5]
The ungrammaticality of (19) and (20) below makes it clear that
'command' relationship is not relevant either for reflexivization or
for pronominalization in Hindi-Urdu:

    (19) *jəb $\begin{Bmatrix} \text{əpne} \\ \text{uske} \end{Bmatrix}$ bhaĩ ne phon kiya təb ram so rəha tha.

        when his brother ag. phoned then Ram sleep -ing was

        When his brother called, Ram was asleep.

    (19a) jəb ram ke bhaĩ ne phon kiya təb vəh so rəha tha.

        when Ram of brother ag. phoned, then he sleep -ing was

        When Ram's brother called, he was asleep.

    (20) *ram təb so rəha tha jəb əpne bhaĩ ne phon kiya.

        Ram then sleep -ing was when self+poss. brother ag. telephoned

    (20a) ram təb so rəha tha jəb uske bhaĩ ne phon kiya

        Ram was asleep when his brother called.

    (21) *əpne ate hĩ ram khana khayega

    (21a) ate hĩ ram khana khayega

        Ram will eat as soon as he comes.

In (19a) and (20a), pronominalization takes place on the basis of
'precede-follow' relationship, reflexivization is blocked because
the antecedent and the coreferential NP are not in the same clause.
If 'command' relationship were relevant for pronominalization, (19)
with uske would have been grammatical and if it were relevant for
reflexivization (21) would have been grammatical. The 'command'
relationship is relevant only for deletion of a coreferential NP in
Hindi-Urdu (Kachru 1973b and 1974).

      The following evidence establishes reflexivization as a cyclic
rule. The rule that results in infinitival complements (the ka-na

Complementizer Placement rule in Subbarao 1974) and the rule that
raises the subject of an embedded sentence to the position of the
object of a higher verb (Raising in Subbarao 1974) are both cyclic.
This claim can be justified with the following examples:

(22) šyam ram ka vəhã jana ṭhĩk səməjhta hɛ.

Shyam Ram of there to go proper considers

Shyam considers it proper for Ram to go there.

(23) mujhe ram ka s̄yam ko mūrkh səməjhna ənucit nəhĩ̃ ləgta.

to me Ram of Shyam obj.m. fool to consider improper not seems

It does not seem improper to me that Ram considers Shyam a fool.

In deriving (22), the ka-na rule applies first, which results in (22a):

(22a)
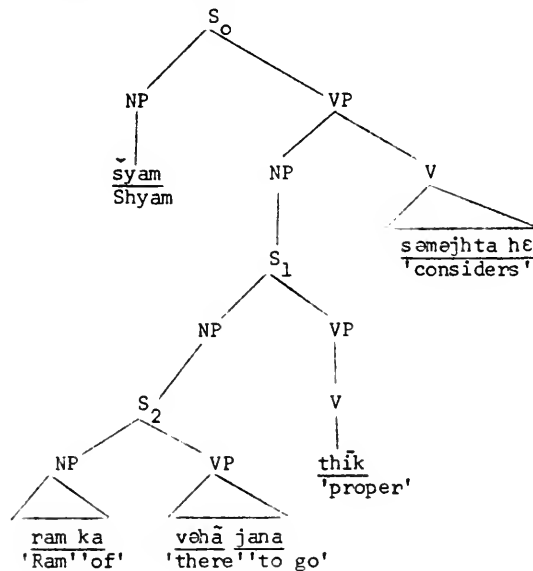
Given the configuration in S_1, Raising applies on the S_0 cycle, resulting
in (22b):[6]

(22b)
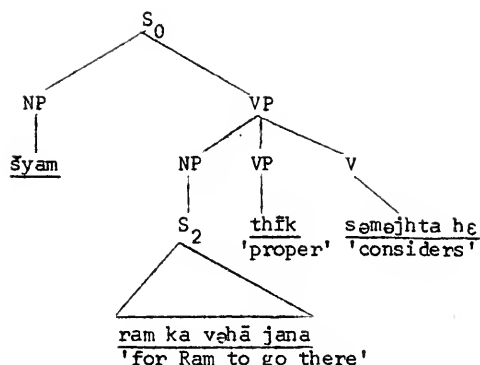
In deriving (23), Raising applies first, then ka-na applies, and then
Raising applies again. The first application of Raising results in (23a):

(23a)
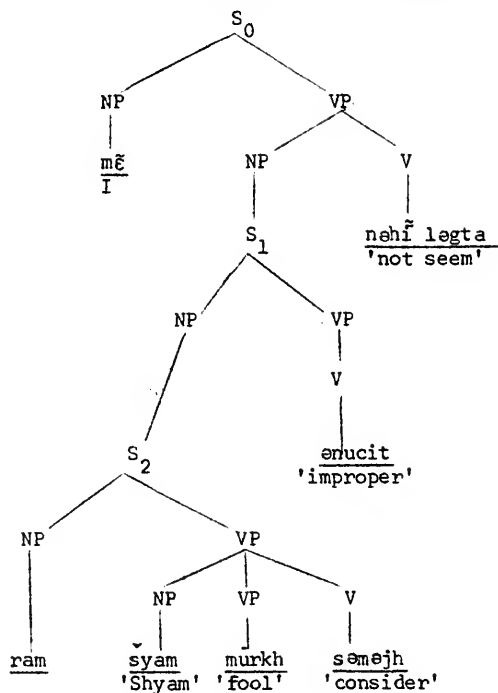
The ka-na rule applies next and results in (23b):

(23b):


```
                        S₀
            ┌───────────┴───────────┐
           NP                       VP
            |              ┌─────────┴─────────┐
           mɛ̃            NP                    V
           'I'             |                    |
                          S₁              nəhĩ ləgta
                    ┌──────┴──────┐        'not seem'
                  /NP/            VP
                    |              |
                   S₂             V
              ┌─────┴─────────┐    |
                               ənucit
                              'improper'
        ram ka s̆yam ko mũrkh səməjhna
        'Ram of Syam obj.m. fool to consider'
```
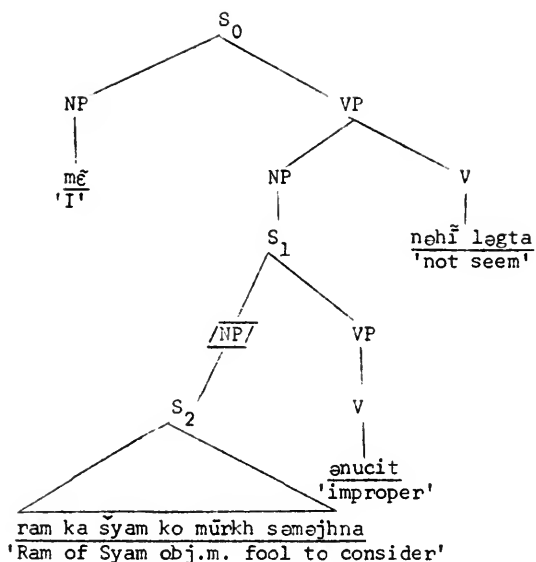
On the S_0 cycle, the boxed NP in S_1 undergoes Raising again, yielding (23c):[7]

(23c)


```
                        S₀
            ┌───────────┴───────────┐
           NP                       VP
            |          ┌─────────┬────────┐
           mɛ̃        NP        VP         V
           'I'         |         |          |
                      S₂        V      nəhĩ ləgta
                 ┌─────┴────┐    |       'not seem'
                            ənucit
                           'improper'
        ram ka s̆yam ko mũrkh səməjhna
        'Ram of Shyam obj.m. fool to consider'
```
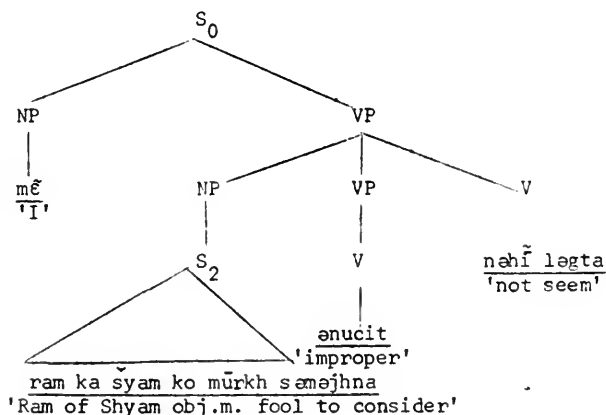
Reflexivization interacts with Raising in an interesting way. Consider:

(24) mɛ̃ əpnĩ citthiyõ ka aj hĩ bheja jana zərūrī səməjhta hũ.

I selves letters of today emph. being sent necessary consider

I consider it necessary that my letters be sent today.

(25) mɛ šyam ka əpnī bəhən ko təng kərna ucit nəhĩ səmejhta.

      I Shyam of selves sister obj.j. torment proper not consider

      I do not consider it proper for Shyam to torment his sister![8]

(24) is derived by applying the rules of passivization, ka-na, Raising, and Reflexivization in that order, to the 'remote' representation given in (24a):

(24a)

S_0

NP — mɛ̃ 'I'

VP

NP — S_1

V — səmejhta hũ 'consider'

NP — S_2

VP — V — zərūrī 'necessary'

NP — koī 'someone'

VP

NP — meri citthiyā̃ 'my letters'

Adv. — aj hī 'today'

V — bheje 'send'
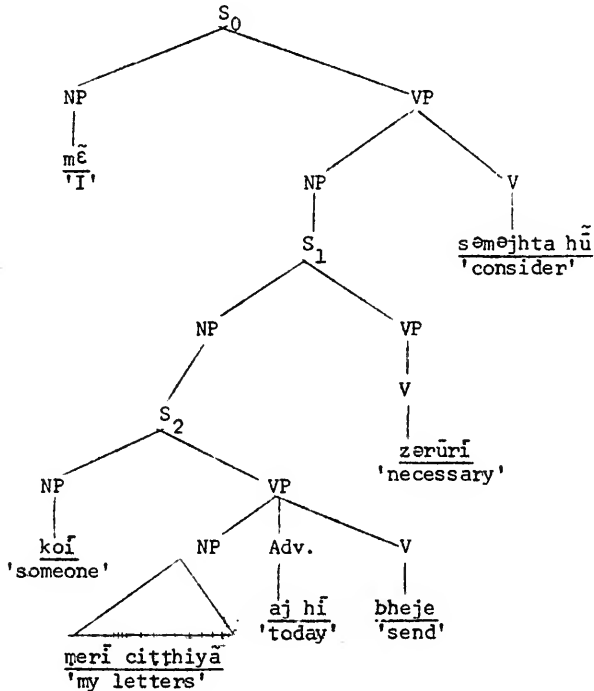
Passivization of S_2 and subsequent application of ka-na yields [meri citthiyõ ka aj hī bheja jana] which is dominated by the NP of S_1. Raising and other rules then yield the sentence in (24). The sentence in (25) results from Reflexivization, ka-na and Raising, in that order, applied to the remote structure given in (25a):

(25a)

```
                              S₀
                 ┌────────────┴──────────┐
                NP                        VP
                 │                   ┌────┴────┐
                mɛ̃                   NP         V
                                     │          │
                                     S₁      səməjhta
                            ┌────────┴──┐    'consider'
                           NP           VP
                  ┌─────────┘            │
                  │                      V
                  S₂                     │
         ┌────────┴──────┐          ucit nəhĩ
        NP               VP         'proper not'
         │          ┌────┴──────┐
        syam        NP          V
       'Shyam'      │            │
                syam kĩ bəhən   təng kərna
               'Shyam's sister' 'to torment'
```
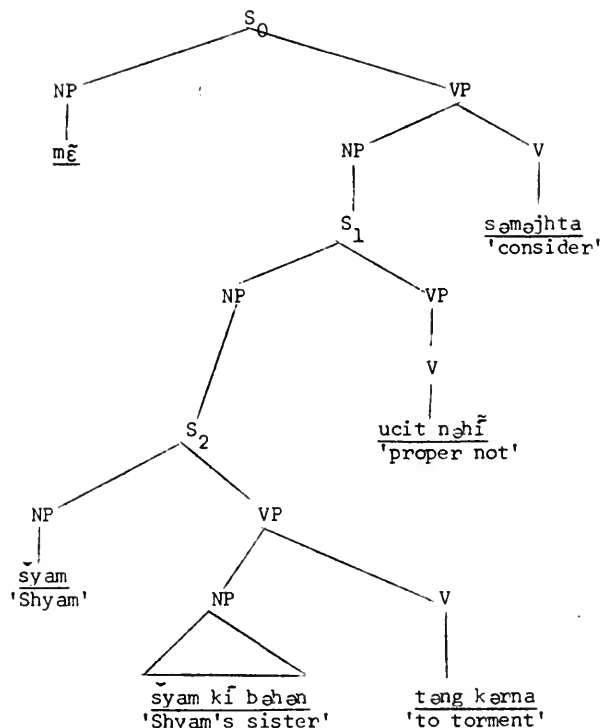
Notice that Reflexivization must apply to S_2, as the conditions for
the application of this rule are fulfilled by the structure of S_2.
ka-na and Raising follow Reflexivization to derive the sentence in (25).
If Reflexivization were a pre-cyclic rule, it would be impossible to
derive the sentence in (24), if it were postcyclic, it would be impossible
to derive the sentence in (25). Besides, Reflexivization can both precede
and follow Raising which is a cyclic rule. Hence, Reflexivization must
be cyclic too.

The ambiguity of sentences such as the following are also neatly
accounted for if Reflexivization is assumed to be a cyclic rule:

(26) sĩta ne radha ko əpnĩ bəhən ke sath khelne ke liye kəha.
      Sita ag. Radha obj.m. self+poss. sister with to play asked
      Sita asked Radha to play with her sister.

(27) sas ka bəhū se əpne liye cay bənane ko kəhna ucit nəhĩ tha.

The mother-in-law's asking the daughter-in-law to prepare

tea for $\begin{cases} \text{her} \\ \text{herself} \end{cases}$ was not proper.

Both (26) and (27) are ambiguous in that in (26), either sīta or radha
may be the antecedent of əpnī and similarly, in (27), either sas or bəhū
may be the antecedent of əpne liye. A detailed discussion of (27) will
make the point clear. The 'remote' representations of (27), corresponding
to its two meanings, are given in (27a) and (27b):

(27a)

S_0

NP — VP

VP: ucit nəhĩ tha 'was not proper'

S_1

NP: sas 'mother-in-law'

VP

NP: bəhū 'daughter-in-law'

S_2

V: kəh 'say'

NP: bəhū 'daughter-in-law'

VP

Postp. NP: cay 'tea'

V: bəna 'make'

NP: sas 'mother-in-law'

ke liye 'for'

(27b)

```
                              S₀
                  _____
                 /                        \
                NP                         VP
                 \                          |
                  S₁                    ucit nəhĩ tha
            _____/__                  'was not proper'
           /         \
          NP          VP
          |         __/____
         sas       /       \
   'mother-in-law' NP       V
                   |        |
                 bəhū      kəh
            'daughter-in-law' 'say'
                   |
                   NP
                   |
                   S₂
              _____/____
             /          \
            NP           VP
            |         ___/___
          bəhu       /   |   \
               Postp. NP   V
                 /\    |    |
                /  \  cay  bəna
               NP   \ 'tea' 'make'
               |     \
             bəhu   ke liye
        'daughter-in-law' 'for'
```
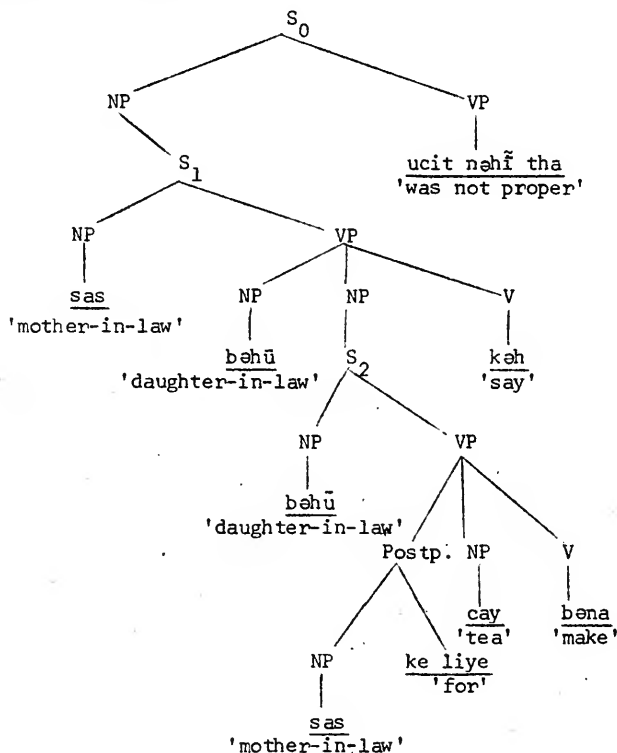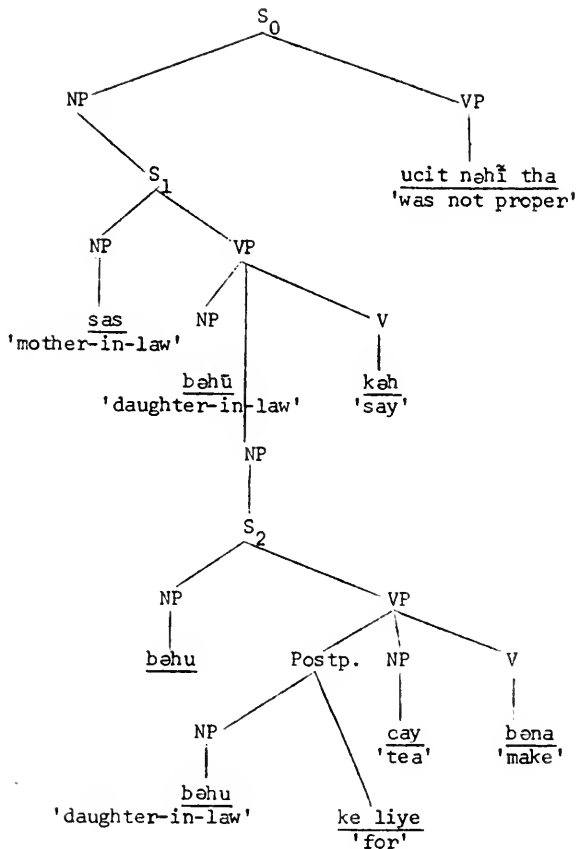
Let us take up (27a) first. On the S₂ cycle, no rules apply. On the
S₁ cycle, first ka-na rule applies and the result is:

(27aa)

```
                        S₁
            _____/_____
           /                            \
          NP                             VP
          |                    _____/_____
         sas                  /         |        \
   'mother-in-law'           NP         NP         V
                             |          |          |
                           bəhū         S₂        kəh
                      'daughter-in-law' /\        'say'
                                       /  \
                                    (NP)   VP
                                     |      |
                                  bəhū ka  sas ke liye cay banana
```
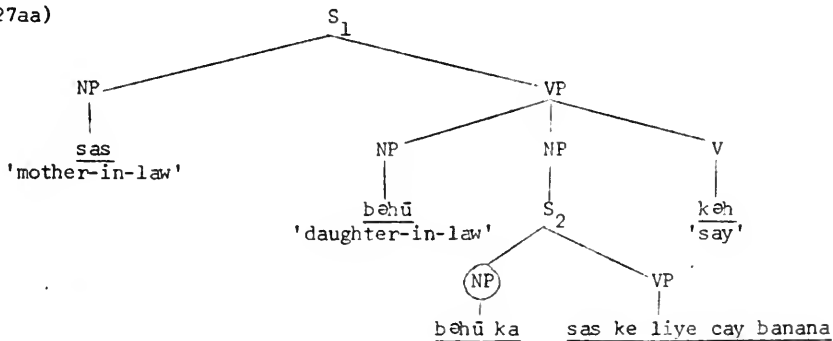
There is no evidence so far to suggest that the S_2 node is pruned following the complementizer placement. Hence, the identical NP behū is deleted by the Equi-NP-Del. rule and subsequently the complementizer ka is deleted by the Comp. Del. rule. Now, the S_2 node is pruned and since both instances of sas are dominated by the same S, the second instance of sas is reflexivized. On the S_0 cycle, the Complementizer rule applies again and (27) is obtained.

Now let us consider (27b). On the S_2 cycle, the reflexivization rule applies and yields S_2[behū epne liye cay bena]S_2. On the S_1 cycle, the ka-na rule is applied and the result is:
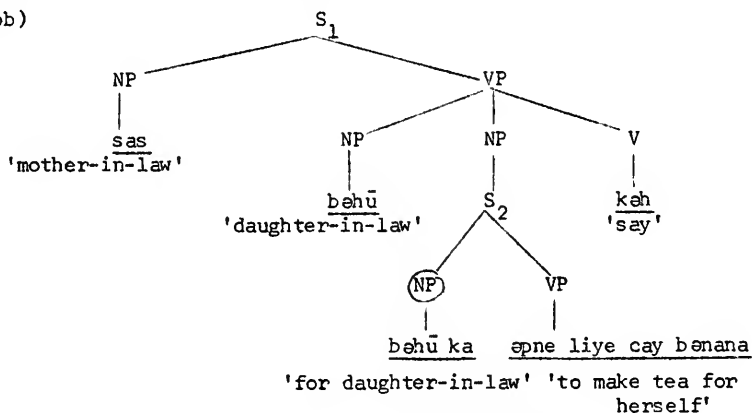
(27bb)

```
                              S₁
          ┌───────────────────┴──────────────────┐
         NP                                       VP
          │                          ┌────────────┼──────────┐
         sas                        NP            NP          V
    'mother-in-law'                  │            │           │
                                   behū          S₂          keh
                              'daughter-in-law'   │          'say'
                                           ┌──────┴──────┐
                                         (NP)           VP
                                           │             │
                                        behū ka   epne liye cay benana
                                    'for daughter-in-law'  'to make tea for
                                                                  herself'
```

The structure meets the condition for Equi-NP-Del. and with the deletion of the identical NP and Comp., the circled NP-node is deleted. Subsequently, the S_2 node meets the conditions for S pruning and is deleted. On the S_0 cycle, the Complementizer rule applies again, and (27) is obtained. The ko following the phrase X-ke liye cay benana is inserted by a late rule (Subbarao 1974).

3.0. Further Data Examined

Now, we will consider the data that contradicts the claims that reflexivization in Hindi-Urdu meets the clause-mate constraint and that it is cyclic. We will first discuss cases that violate the clause-mate constraint, and then the cases that violate the cyclic principle.
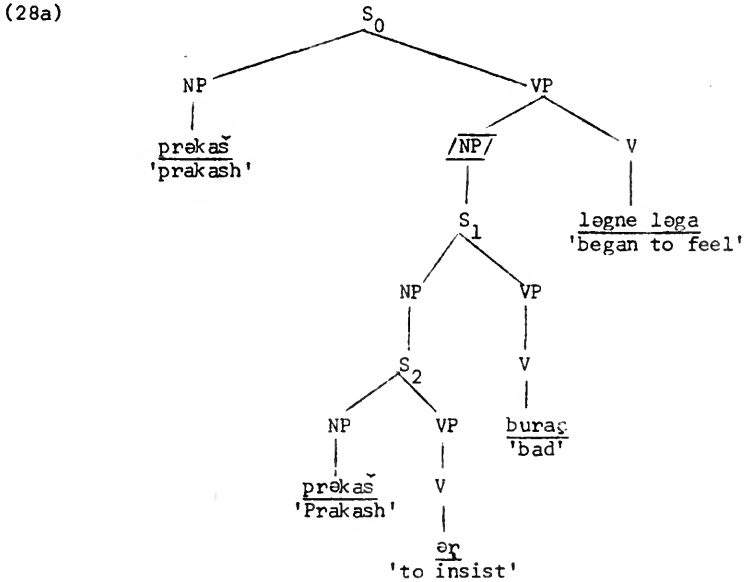
3.1. Violation of Clause-Mate Constraint

(28) prǝkaš ko ǝpna ǝrna bura lǝgne lǝga.

Prakash to selves' to insist bad began to feel

Prakash began to feel uncomfortable about his insisting (upon something).

The remote representation of 28 is as follows:

(28a)

S_0

NP — VP

prǝkaš
'prakash'

/NP/ — V

S_1 lǝgne lǝga
'began to feel'

NP — VP

S_2 V

NP — VP   buraç
'bad'

prǝkaš   V
'Prakash'

ǝṛ
'to insist'

On S_2 cycle, no rules apply. On the S_1 cycle, the ka-na rule applies and the result is:

(28b)

S_1

/NP/ — VP

S_2 bura
'bad'

NP — VP

prǝkaš ka   ǝṛna
'for Prakash'   'to insist'
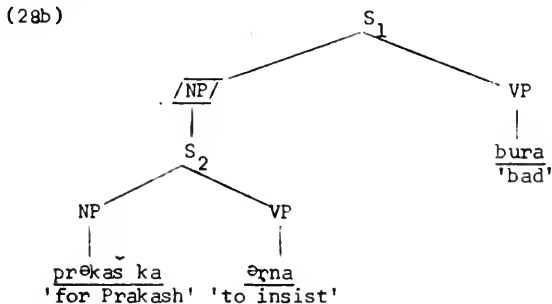
Notice that there is no basis for assuming that the node S_2 is pruned at

this stage. The predicate l_ə_g governs both k_i-complementizer and
Raising. If the former applies on the S_0 cycle, then Extraposition must
apply, and the result is a different sentence:

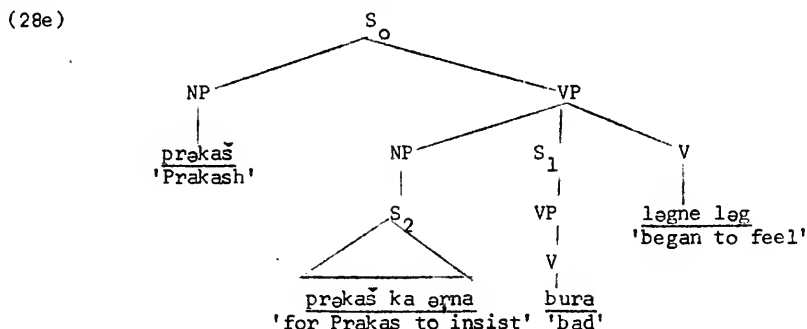(28c) ?prəkas̆ ko ləgne ləga ki prəkas̆ ka ərna bura hɛ.

Prakash felt that for Prakash to insist was bad.

which meets the condition for pronominalization and after pronominalization
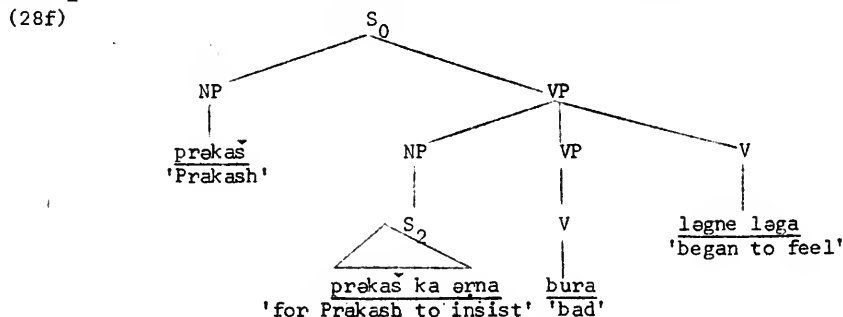we get:

(28d) prəkas̆ ko ləgne ləga ki uskə ərna bura hɛ.

Prakash felt that for him to insist was bad.

If, however, Raising applies on the S_0 cycle, it raises the entire
boxed NP in (28b), and makes it the complement of l_ə_g. The result is (28e):

(28e)

Tree for (28e): S_0 with NP [prəkas̆ 'Prakash'] and VP. VP contains NP, S_1, V. NP dominates S_2 [prəkas̆ ka ərna 'for Prakas to insist']. S_1 contains VP which contains V [bura 'bad']. V [ləgne ləg 'began to feel'].

The node S_1 meets the conditions for S-pruning. After pruning, we get (28f):

(28f)

Tree for (28f): S_0 with NP [prəkas̆ 'Prakash'] and VP. VP contains NP, VP, V. NP dominates S_2 [prəkas̆ ka ərna 'for Prakash to insist']. VP contains V [bura 'bad']. V [ləgne ləga 'began to feel'].

Notice that (28f) must undergo reflexivization, although the NP of VP
in S_0 still dominates the S_2 node. Sentences such as (28) thus cast grave
doubts upon the claim that reflexivization in Hindi-Urdu meets the clause-
mate constraint.

3.11. Some Alternatives Considered

It may be suggested that either the tree-pruning convention, or the Reflexivization rule be revised in some way so that sentences such as (28) are accounted for in the grammar of Hindi-Urdu. Let us first consider the tree-pruning convention. It may be stipulated that following the ka-na rule, the S-node dominating the ka-na complement is pruned. Unfortunately, this would lead to the following consequences. The rule of Equi will have to be revised so that it generates (29) but does not generate (29a):

(29) ram vǝhã jana cahta hɛ.

Ram there to go wants

Ram wants to go there.

(29a) *ram ǝpna vǝhã jana cahta hɛ.

Ram self's there to go wants

*Ram wants for himself to go there.

Also, some ad-hoc restrictions will have to be placed on the rule of Reflexivization to ensure that in (30), only sǝrita and ǝpna are interpreted as coreferential:

(30) ram sǝrita ke ǝpne ko galĩ dene se kyõ pǝrešan hota hɛ?

Ram Sarita of self to abuse give by why upset becomes

Why is Ram upset by (the fact) that Sarita curses herself?

Notice that the pruning of S-node following ka-na Complementizer Placement predicts (30) to be potentially ambiguous, which is incorrect. It may then be suggested that the clause-mate constraint be abandoned for reflexivization in Hindi-Urdu. This would then result in the grammar generating such ill-formed sentences as (31) and (32):

(31) *sĩta ne kǝha kị ǝpne ko bhũkh lǝgĩ hɛ.

*Sita said that herself is hungry.

(32) *raj yǝh xǝbǝr sun kǝr ki ǝpna bhaĩ kǝl aega xuš ho gǝya.

*Raj became happy to hear the news that selves' brother will arrive tomorrow.

An ad-hoc condition may be added, specifying that the S node dominating the ka-na complement is to be ignored for the purposes of reflexivization. But this is too general, as demonstrated above, and not general enough, as is shown below.

The phenomenon discussed above, i.e., reflexivization operating on the coreferential NP in an embedded sentence, is not confined to <u>ka-na</u> complements only. Consider the following sentences:

(33)   use əpnī bəhən kī likhī huī kəvitaẽ pəsənd nəhī̃ hɛ̃.

          to him selves sister of written poems likeable not are

          He doesn't like the poems written by his sister.

(34)   Ram əpne dost kī bhejī huī kitabẽ pəṛh rəha hɛ.

          Ram selves friend of sent books read ing is

          Ram is reading the books sent by his friend.

The 'remote' representation of (34) is as follows:
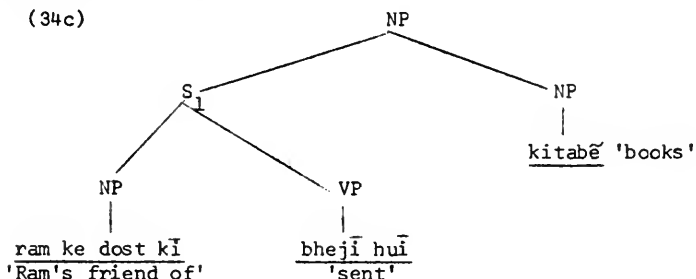
(34a)
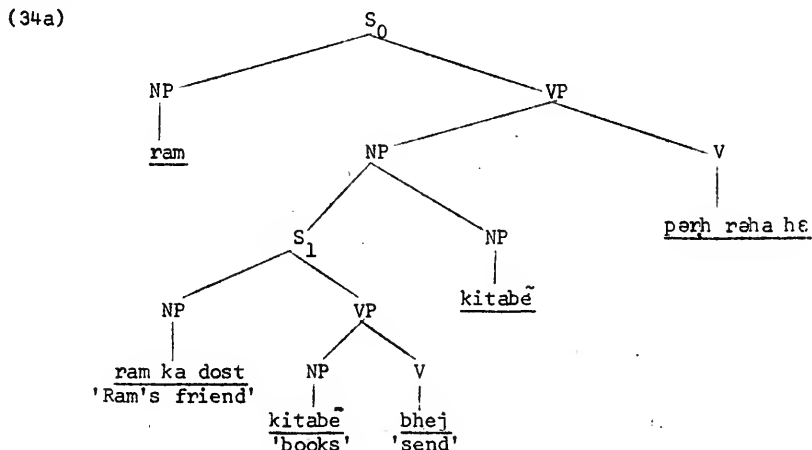
The sub-configuration (34b) meets the condition for relative clause construction:

(34b)
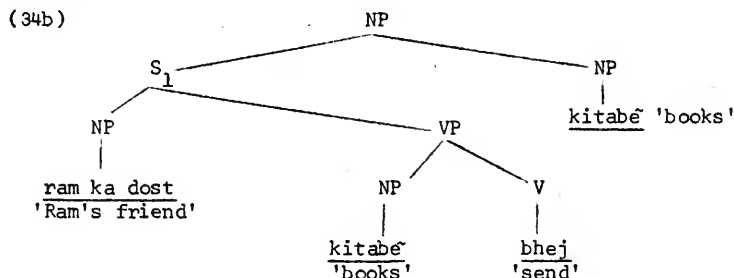
There is a rule in Hindi-Urdu which derives participial phrases from sentences such as S_1 which then modify head NPs which are coreferential

with their objects (Kachru 1965 and 1966, Verma 1971). The application
of this rule, and subsequent deletion of the commanded NP coreferential
with the head NP results in (34c):

(34c)

```
                              NP
              S₁                        NP
                                         |
                                   kitabẽ 'books'
        NP              VP
         |               |
  ram ke dost kī    bhejī huī
  'Ram's friend of'    'sent'
```

Notice that the S_1 node in (34c) is not a candidate for pruning, and yet,
under coreferentiality with the NP of S_0, the possessive in the NP of S_1
must reflexivize.

The ka-na complement and the participialized modifier share certain
characteristics. Subbarao (1974) demonstrates that the ka-na complement
does not behave like a full clause with respect to some rules. The partici-
pialized modifier also does not behave like a full clause, it behaves like
an adjective phrase (hereafter AP) in that it must precede the head NP
it modifies, whereas a full relative clause has more freedom of occurrence
in a sentence (Kachru 1973b and 1974). Notice that the rules that yield
ka-na complements and participial modifiers in some sense 'demote' the
clauses they operate upon, that is, after the application of these rules,
the clauses are no longer full clauses, they behave more like phrases.
As such -- although, technically speaking, S-pruning is not possible --
for the purposes of rules such as Extraposition and Raising, the ka-na
complements and the participial modifiers are NPs and APs respectively.[10]
Following Raising, which treats the ka-na complement as a NP, Reflexiviza-
tion may go down into the ka-na complement in Hindi-Urdu.

3.1.2. A General Principle Suggested

To account for the date discussed above, then, it is clear that a
condition such as (35) must be incorporated into the grammar of Hindi-Urdu:

    (35)   In case the subordinate clause in which the coreferential
           NP occurs has undergone a rule that has the effect of
           'demoting' it, the coreferential NP is to be considered a
           clause-mate of the controlling NP.[11]

This means that the derivational history must be made available
for the purposes of proper application of the reflexivization rule in
Hindi-Urdu.

3.2. Reflexivization Rule Reexamined

Consider the following sentences which also challenge the claim
that reflexivization is a cyclic transformational rule in Hindi-Urdu:

(36) ?radha ne sīta ko radha kī təsvīr dikhaī.

Radha ag. Sita to Radha of picture showed.

?Radha showed Sita a picture of Radha.

(36a) radha ne sīta ko əpnī təsvīr dikhaī.

Radha ag. Sita to selves' picture showed

Radha showed Sita a picture of herself.

(37) ?radha ne sīta ko sīta kī təsvīr dikhaī.

Radha ag. Sita to Sita of picture showed

?Radha showed Sita a picture of Sita.

(37a) *radha ne sīta ko əpnī təsvīr dikhaī.

Radha ag. to Sita to selves' picture showed

*Radha showed Sita a picture of herself.

(37b) radha ne sīta ko uskī təsvīr dikhaī.

Radha ag. Sita to her picture showed

Radha showed Sita a picture of her.

It has been claimed that sentences such as (36a) and (37b) are complex,
in particular, they result from a rule of Causativization (or predicate
raising) from underlying representations such as the following (Kachru
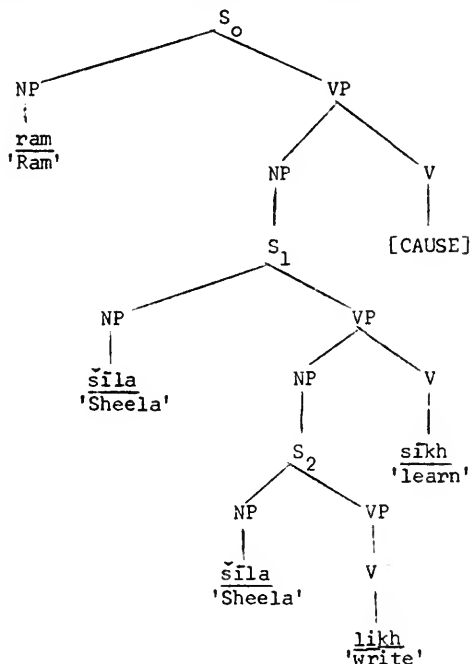1973a, 1974, Kleiman 1971):

(38)
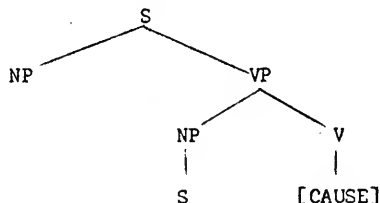
Let us consider whether the causative rule is a cyclic rule. The
evidence is indirect in that it is not possible to show the causative
rule interacting with any cyclic rule directly. Consider the following
sentences:

(39)   ram ne šīla ko likhna sikhaya.
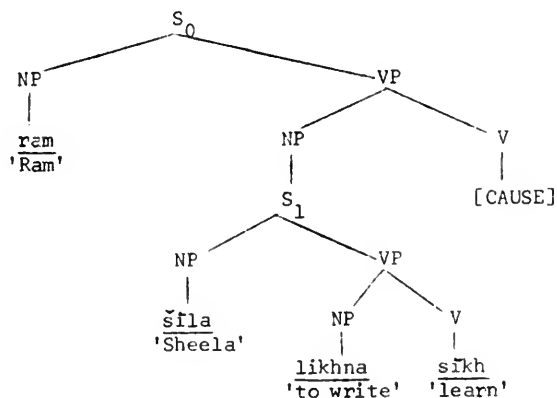
       Ram ag. Sheela obj.m. write taught

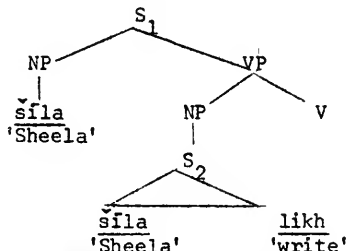The underlying representation of (39) is as given in (39a):

(39a)

```
                        S₀
             _____|_____
            NP                        VP
            ¡                 _____|_____
           ram               NP                  V
          'Ram'              |                   |
                            S₁               [CAUSE]
                    _____|_____
                   NP                  VP
                   |            _____|_____
                 šīla          NP              V
               'Sheela'        |               |
                              S₂             sīkh
                       _____|_____      'learn'
                      NP              VP
                      |               |
                    šīla              V
                  'Sheela'            |
                                    likh
                                   'write'
```

In order to derive (39) from (39a) we have to assume that the ka-na
and the Equi-NP-Del. rules apply on the S₁ cycle, subsequently the S₂
node is pruned and the result is (39b):

(39b)

```
                        S₀
             _____|_____
            NP                        VP
            |                 _____|_____
           ram               NP                  V
          'Ram'              |                   |
                            S₁               [CAUSE]
                    _____|_____
                   NP                  VP
                   |            _____|_____
                 šīla          NP              V
               'Sheela'        |               |
                            likhna            sīkh
                          'to write'         'learn'
```

Now the causativization rule (predicate raising) applies and finally we get (39). In case we assume that causativization (predicate raising) is pre-cyclic, notice that sīkh will be moved up, leaving a structure such as (39c):

(39c)

```
                        S₁
            NP                    VP
            |
          sīla              NP          V
        'Sheela'            |
                            S₂
                      sīla          likh
                    'Sheela'       'write'
```

Since ka-na and Equi-NP-Del. are both governed rules and are governed by the predicate sīkh in S_1, predicate raising destroys the conditions for the application of ka-na and Equi-NP-Del. Consequently, no grammatical sentences result from (39a) under this hypothesis, which is clearly wrong.
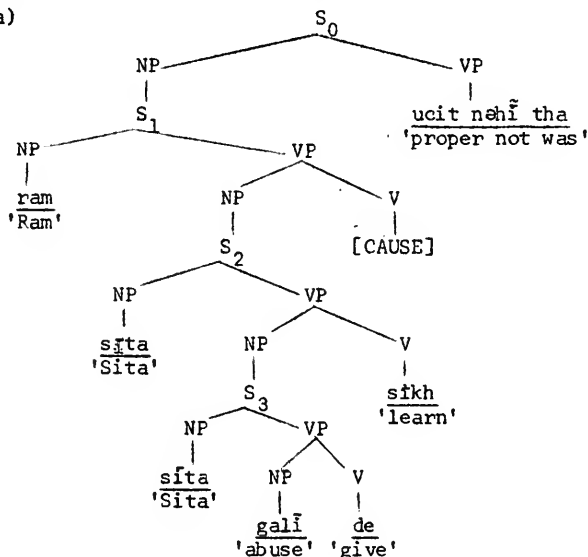
Now consider (40):

(40)   ram ka sīta ko galī dena sikhana ucit nəhĩ tha.

        For Ram to teach Sita to abuse (someone) was not proper.

The underlying representation of (40) is as follows:

(40a)

```
                              S₀
        NP                                VP
        |                                 |
        S₁                          ucit nəhĩ tha
   NP          VP                 'proper not was'
   |
  ram        NP          V
 'Ram'       |
             S₂        [CAUSE]
       NP          VP
       |
     sīta      NP          V
    'Sita'     |           |
               S₃        sīkh
          NP        VP   'learn'
          |
        sīta     NP     V
       'Sita'    |      |
               galī    de
              'abuse' 'give'
```

Notice that first, the <u>ka-na</u> and Equi-NP-Del. rules apply on the S_2 cycle, then the Causativization rule (predicate raising) applies on the S_1 cycle and then the <u>ka-na</u> rule applies on the S_0 cycle to yield (40). Thus the Causativization rule is neither a last cyclic nor a post-cyclic rule.
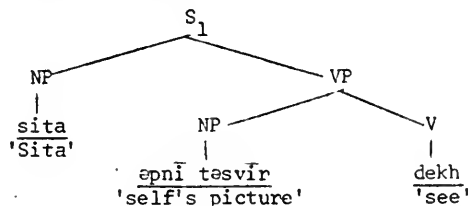
If both the Causativization and Reflexivization rules are cyclic, (37a) should be grammatical in the sense of (37). Consider the following structure underlying (37):

(37c)
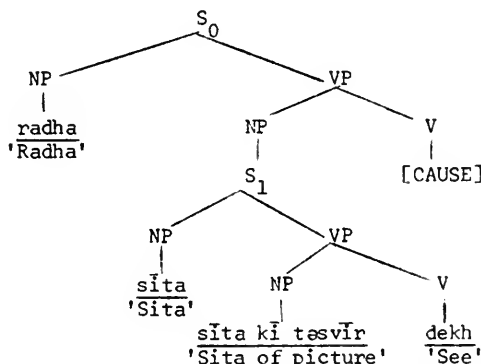
On the S_1 cycle, the reflexivization rule applies yielding:

(37d)

Now the Causativization rule applies, yielding (37a) which is ungrammatical in the sense of (37). The grammatical (37b) can be derived if the causativization rule applies first and the reflexivization rule applies to the output of the predicate raising rule. But, Reflexivization is a cyclic rule, and its application cannot be blocked on S_1 cycle in (37c). The causative sentences thus pose a serious problem for the account of reflexivization in Hindi-Urdu.

It may be suggested that reflexivization in Hindi-Urdu may be a post-cyclic or last cyclic rule. Sentences such as (39) and (40) strongly refute this hypothesis. Note that the cyclic rule of Equi-NP-Deletion

destroys the conditions for reflexivization in (27b) and thus it is impossible to get sentence (27) in its second reading under this hypothesis.

3.2. Interaction with Raising

Again, this phenomenon, i.e., blocking of reflexivization in an embedded S in case the structural description of the matrix sentence meets the conditions for predicate raising, is not an isolated phenomenon. The same applies to cases where subject raising (Raising in Subbarao 1974) operates.[12] Consider the following:

    (41) ʔraj manta hɛ ki rətən rətən ka səbse bəɽa dušmən hɛ.

        ʔRaj accepts that Ratan is the greatest enemy of Ratan.

    (41a) raj manta hɛ ki rətən əpna səbse bəɽa dušmən hɛ.

        Raj accepts that Ratan$_i$ is his greatest enemy.

    (41b) *raj rətən ko əpna səbse bəɽa dušmən manta hɛ.

        Raj considers Ratan his greatest enemy

    (41c) raj rətən ko uska səbəse bəɽa dušmən manta hɛ.

    (42) ʔraj manta hɛ ki rətən raj ka səbse bəɽa dušmən hɛ.

        ʔRaj accepts that Ratan is Raj's greatest enemy.

    (42a) raj manta hɛ ki rətən uska səbse bəɽa dušman hɛ.

        Raj accepts that Ratan is his greatest enemy.

    (42b) raj rətən ko əpna səbse bəɽa dušmən manta hɛ.

        Raj$_i$ considers Ratan his$_i$ greatest enemy.

    (42c) *raj rətən ko uska səbse bəɽa dušmən manta hɛ.

The ungrammaticality of (41b) and the grammaticality of (41c) raises the same problem. The source for (41) is as follows:

    (41d)
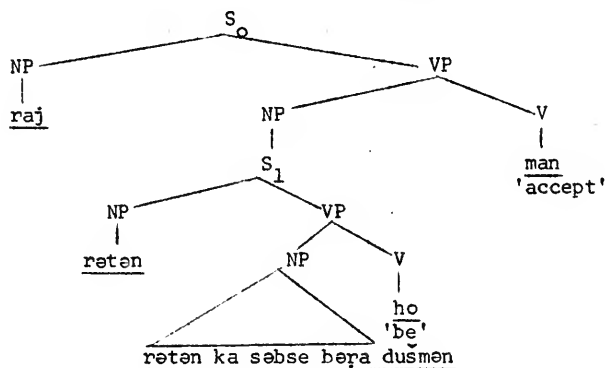
Since reflexivization is a cyclic rule, it must apply on the S_1 cycle, but then the result is ungrammatical (41b). The application of Reflexivization must be blocked in (41d) until after Raising.

3.2.2. Another General Principle Suggested

Again, notice that what is common to both Causativization and Raising rules is that both destroy the structures of the clauses to which they apply as a consequence of which the controller NP ceases to be the subject. In order to account for reflexivization in sentences which result from application of predicate and subject-raising rules then, it is necessary to incorporate a constraint such as (43) in the grammar of Hindi-Urdu:

(43) Block the Reflexivization rule in case the controller NP ceases to be the subject in the next higher cycle.[13]

4.0. We have presented above arguments in support of two general principles, (35) and (43), which have the effect of respectively allowing or disallowing reflexivization in well-defined linguistic contexts. How precisely such principles are to be stated is quite a different question. Note that these principles do not refer to one rule, they refer to classes of rules, i.e., rules that change the status of the clause by demoting it to the status of a phrase, or rules that change the status of a subject to that of a non-subject. That these principles are correct can be demonstrated by considering whether they make correct predictions regarding complex sentences which result from the interaction of the types of rules mentioned above. Consider the following:
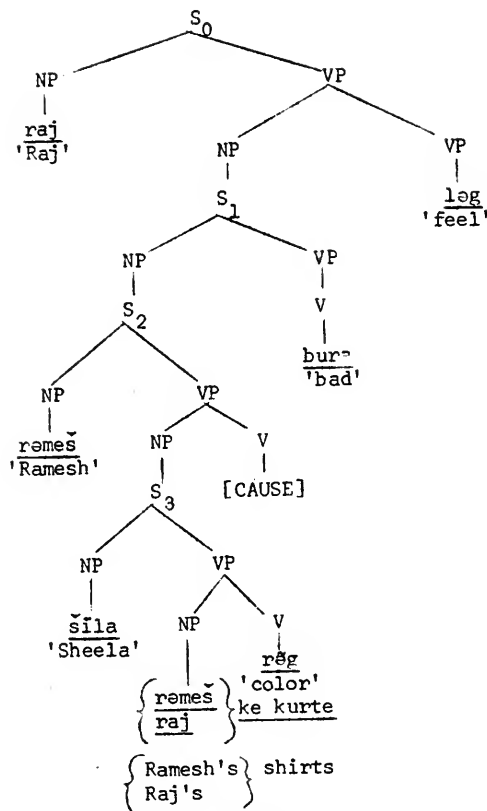
(44) raj ko rǝmeš ka šĩla se ǝpne kurte rǝ̃gvana bura lǝga.

Raj to Ramesh of Sheela by selves' shirts to get dyed bad felt

Raj didn't like Ramesh getting his shirts dyed by Sheela.

Principles (35) and (43) predict that in (44) the possessive reflexive refers either to Raj or to Ramesh, but not to Sheela. In fact, that is correct. The underlying representation of (44) is as follows:

(44a)

```
                            S_0
              /                        \
            NP                          VP
            |                    /              \
           raj                 NP                VP
          'Raj'                |                  |
                              S_1                lǝg
                       /            \           'feel'
                      NP             VP
                      |               |
                     S_2              V
                  /        \          |
                NP          VP       burǝ
                |        /      \    'bad'
              rǝmeš     NP       V
            'Ramesh'    |        |
                       S_3     [CAUSE]
                    /       \
                  NP         VP
                  |        /      \
                šíla      NP       V
              'Sheela'    |        |
                        ⎧rǝmeš⎫   rǝg
                        ⎨─────⎬  'color'
                        ⎩ raj ⎭  ke kurte

                        ⎧Ramesh's⎫ shirts
                        ⎨        ⎬
                        ⎩ Raj's  ⎭
```

Notice that S_3 could very well be S_3[šíla šíla ke kurte rǝ̃g]S_3, but then the surface shape of the sentence will be as in (45):

(45)   raj ko rǝmeš ka šíla se uske kurte rǝ̃gvana bura lǝga.

Given (44a), according to (35), the application of the Causativization (predicate raising) rule on the S_2 cycle makes it possible to claim that rǝmeš is the antecedent of the possessive reflexive in (44). Subsequently, the application of Raising on the S_0 cycle makes it possible to claim that raj is the antecedent of the possessive reflexive in (44). If S_3 in (44a) were S_3[šíla šíla ke kurte rǝ̃g]S_3, (43) would have blocked the application of Reflexivization, on the S_2 cycle both Causativization and Pronominalization would have applied and the result would have been as in (45).   Thus, the principles we have suggested correctly account for all

the data discussed in this paper without complicating the Reflexivization
or any other rule of Hindi-Urdu grammar. Incorporation of these constraints
(35 and 43) in a grammar of Hindi-Urdu makes it possible to characterize
the Reflexivization rule in the language in terms of optimal generality,
i.e., as a cyclic rule subject to the clause-mate constraint.

4.1. In this section, we will consider the claim that all conveniently
cyclic rules, such as Reflexivization, may be reformulated as post-
cyclic global rules to constrain the notions of cyclic and global rules
(Johnson 1974). The data discussed in this paper concerns the kind of
globablity that is involved in rule-interaction. A post-cyclic global
rule of Reflexivization for Hindi-Urdu may be formulated as follows:

   (46) NP_i reflexivizes NP_j if NP_i and NP_j are stipulated coreferents
        in the underlying representation, and
        I. (i) NP_i precedes NP_j, and
           (ii) NP_i and NP_j command each other and
           (iii) NP_i does not cease to be the subject in the next
                 higher cycle;

or   II. (i) NP_i commands NP_j, but NP_j does not command NP_i, and
               (ii) NP_i = NP of S that has become more noun-like or
                    adjective-like.

Note that in 46, condition I(iii) states the same facts as the proposed
constraint (43) and condition II(ii) states the same facts on the proposed
constraint (35). Both the formulations seem to capture the significant
generalizations. It would be interesting to examine in detail what
implications these alternative formulations have for linguistic universals.
The first formulation, i.e., in terms of a cyclic rule plus two independent
constraints, allows for the following claim: if reflexivization is a
universal (or near-universal) process, then it is the cyclic rule of
Reflexivization which captures the universality of the process. Constraints
such as (35) and (43) belong to a language-specific constraint box (Ross
1967) particular to Hindi-Urdu, i.e. they are specific to Hindi-Urdu
grammar just as the ordering of Passive before Reflexivization is specific
to English grammar. The alterantive formulation in terms of a post-cyclic
rule does not allow for such a claim. Besides, the first formulation
allows for certain hypothetical dialect variations which are harder to
state in terms of the second formulation. As we have not investigated the
dialect variations alluded to here, we are leaving the question of

selecting between the two alternatives open at this stage.

4.2. Certain other interesting questions arise from our discussion.
Constraint (35) requires the rule of Reflexivization to look back to
the derivational history in order to operate to produce a desired output.
Constraint (43) is global in a way, which, to our knowledge, has not
been discussed in literature so far. (43) makes the claim that a global
principle (rule or constraint) is also capable of looking at a later
stage of derivation, at least at the next higher cycle. This is crucial
in order to account for sentences which result from the interaction of
Reflexivization with the rules of Causativization and Raising. If
Reflexivization in Hindi-Urdu is reformulated as a post-cyclic rule, as
in (46), then, of course, there is no need to claim that global constraints/
rules are capable of looking forward to later stages of derivation. There,
however, remain questions such as the following: Is it necessary to
constrain global rules to look only backwards, i.e., to the history
of a derivation? Given a choice between a formulation in terms of a
cyclic rule plus two global constraints, such as (35) and (43), and an
alternative formulation of a post-cyclic global rule, such as (46),
which is to be selected and on what basis? The answers to these questions
have important implications for an explanatorily adequate linguistic
theory.[14]

NOTES

[1]As Hindi and Urdu share a basic grammar in spite of marked lexical
differences in certain registers, we feel that it is appropriate to
hyphenate the two and treat Hindi-Urdu as one language for the purposes
of this study.
     Throughout this discussion, we have based our observations on the
NP-complement structures in Hindi-Urdu on the account of this phenomenon
given in Subbarao 1974, with one exception. This does not mean that we
consider all the findings of this work beyond controversy. Rules such as
ka-na complementizer placement are open to the same objections as the ones
raised with regard to the for-to complementizer in English (Rosenbaum
1967). It is our belief, nevertheless, that subsequent revisions of these
rules will have no major effect on our discussion of relfexivization in
Hindi-Urdu.

The one exception mentioned above is this: we have not adopted the view that NP-complement structures necessarily have an underlying representation as in (i):

(i)　　　NP

S　　N
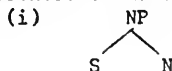
[2]The conventions regarding the use of ? and * in the following Hindi-Urdu sentences is as follows: ? identifies an intermediate string which has yet to undergo at least the rules of pronominalization and/or deletion, whereas * marks a sentence as ungrammatical in the intended sense.

[3]That is, sentences in which the structure of the embedded clause has not been destroyed by a transformational rule such as Raising.

[4]This sentence is ungrammatical in the intended sense only. There is another sentence, which is identical to this on the surface, in which the item ap is an emphatic reflexive.

[5]Langacker 1969 defines the primacy relations, 'command' and 'precede'. Kachru 1973b claims that only the 'precede' relation is relevant for pronominalization in Hindi-Urdu. The data discussed here supports this claim.

[6]Raising has been discussed in detail in Subbarao 1974. Raising in Hindi-Urdu is similar to B-Raising in English.

[7]The rule that assigns the dative postposition ko to the logical subject of verbs such as log is not discussed here. Sentences in Hindi-Urdu with a surface dative subject have been discussed in Kachru 1970.
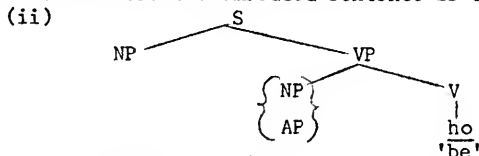
[8](25) is in fact ambiguous. It is, however, relevant for our discussion only in the sense which is brought out by the English translation.

[9]The behavior of ka-na complements with respect to several rules has been discussed in detail in Subbarao 1974. Briefly, it has been shown that the ki-complement (clausal complement) and the ka-na complement behave differently in relation to particular transformations such as Extraposition, Equi-Np Deletion, Passive and Reflexivization. The ki-complement behaves as a clause with respect to Extraposition, Equi-NP Deletion and Reflexivization, the ka-na complement behaves as a clause with respect to Equi-NP Deletion and most cases of Reflexivization and as a NP with respect to Extraposition and the cases of Reflexivization under discussion in this study. The evidence from Passive is unclear in case of ki-complements, the ka-na complements, however, behave as NP's with respect to Passive.

[10]Ross 1972 demonstrates that with respect to several rules of English grammar, the poss -ing complement is more noun-like as compared with the for-to or the that-complement.

[11]The chain of argument behind this formulation is as follows:
the ka-na complement, similar to the poss-ing complement of English, is
more noun-like. Application of Raising in the next higher cycle 'confirms'
its status as a NP even more strongly. Naturally, following these opera-
tions, the coreferential NP in a ka-na complement is treated as a
clause-mate of the controller NP in a higher clause.

[12]In the variety of Standard Hindi-Urdu that we (the authors) speak,
such interaction of Reflexivization and Raising is restricted to only
those cases where the embedded sentence is of the following structure:

(ii)

```
                     S
      NP _____/_____
                              VP
            ⎛ NP ⎫        ____/\____
            ⎜    ⎬               V
            ⎝ AP ⎠               |
                               ho
                              'be'
```

That is, the embedded sentence is a copula verb sentence with either a
predicate nominal or an adjectival complement. Note that Raising is
governed by the predicate of the matrix sentence and there are no restrictions
on the shape of the embedded sentence. Nevertheless, if the embedded
sentence is not of the structure as in (ii), the interaction we are
discussing does not take place. The following sentence, for instance, is
ambiguous for us:

(iii) rani ne syam ko apne bhai ke sath jate dekha.

Rani$_i$ saw Shyam$_j$ going with her$_i$/his$_j$ brother.

There are, however, speakers of Hindi-Urdu for whom the reflexive
pronominal form in (iii) is only coreferential with the subject nominal
rani. In this variety, the interaction we are discussing takes place in
all cases of Raising. We are not sure at present if the two varieties are
to be characterized as regional in nature, i.e., Western vs. non-Western
Hindi-Urdu. Note that even for the latter, sentences such as (26) and
(27) are ambiguous. The account of reflexivization given in this study
thus is valid for all varieties of Hindi-Urdu.

The proposed constraint (43) would be even more convincing if we could
present evidence of the following nature. Note that (43) blocks
Reflexivization in case the subject ceases to be the subject in the next
higher cycle. The reverse of this will be a case in which a new subject
is created by a rule, and then this new subject controls Reflexivization.
Two rules with this potential in English and other languages are Passive
and A-raising. Unfortunately, in Hindi-Urdu, there is no clear evidence
for A-raising, and Passive does not seem to create a new subject. A
long digression will be needed to justify these statements, hence, we will
not attempt to justify them here.

[13]The formulation above is too general for the variety of Hindi-
Urdu spoken by the authors, but accounts for the facts of the other variety
satisfactorily (see note 11 above).

[14]The account of reflexivization in Hindi-Urdu presented here is not
claimed to be exhaustive. There are several aspects of the phenomenon which
have yet to be worked out. Some of these have been mentioned in f.n. 12.

work on these, and one other aspect, is in progress at this point (Kachru 1975). In derivations involving ka-na complements and Raising, the rules of Equi and Reflexivization are in complementary distribution. Given (iv), both (v) and (vi) are grammatical outputs:

    (iv) ?prəkas ne prəkas ka vəhā jana ucit nəhĩ səmjha.
        Prakash ag. Prakash of there to go proper not considered.
    (v) prəkas ne vəhā jana ucit nəhĩ səmjha.
       Prakash ag. there to go proper not considered.
       Prakash didn't consider it proper to go there.
    (vi) prəkas ne əpna vəhā jana ucit nəhĩ səmjha.
       Prakash ag. self's there to go proper not considered
       *Prakash didn't consider it proper for himself to go there.

(v) results from Equi, (vi) from Reflexivization. Note that in Hindi-Urdu, both Equi and Reflexivization are strict complex ID rules (Heath 1975). Kachru 1975 attempts to provide a functional explanation of the complementarity of these two rules.

    The reflexive pronominal forms ap and əpna, in some of their uses, indicate coreferentiality with an antecedent some way back in the discourse, especially if the discourse involved is a narrative with a first person narrator. We have not discussed such uses of ap and əpna in this study.

REFERENCES

Chomsky, Noam. 1965. Aspects of the Theory of Syntax. Cambridge, Mass.:
    MIT Press.
Cohen, David. 1973. Hindi apnaa: A problem in reference assignment.
    Foundations of Language 10:3.
Guru, K.P. 1920. Hindi Vyākaran. Banaras: Kāshĩ Nāgarĩ Prachāriṇĩ
    Sabhā. 1952 edition.
Heath, Jeffrey. 1975. Some functional relationships in grammar.
    Lg. 51:1:84-104.
Johnson, David. 1974. Toward a Theory of Relationally-Based Grammar.
    Urbana, Illinois: University of Illinois Ph.D. dissertation.
Kachru, Yamuna. 1965. A Tranformational Treatment of Hindi Verbal
    Syntax. London: University of London Ph.D. dissertation.
------. 1966. An Introduction to Hindi Syntax. Urbana, Illinois:
    Department of Linguistics, University of Illinois.
------. 1970. The syntax of ko-sentences in Hindi-Urdu. Papers in
    Linguistics 2:2, 299-316.
------. 1973a. Causative sentences in Hindi revisited. Issues in
    Linguistics: Papers in Honor of Henry and Renee Kahane, ed.
    by Braj B. Kachru et.al. 377-93. Urbana: University of Illinois
    Press.
------. 1973b. Some aspects of pronominalization and relative clause
    construction in Hindi-Urdu. Studies in the Linguistic Sciences 3:2,
    87-103.
------. 1974. Pronominalization vs. deletion: evidence from relative
    clause construction in Hindi-Urdu. (to appear).
------. 1975. Equi vs. Reflexivization in Hindi-Urdu: A Functional
    Explanation. (to appear).

Kleiman, A. 1971. Some aspects of the causative constructions in Hindi. Studies in the Linguistic Sciences 1:2, Urbana, Illinois, Department of Linguistics, University of Illinois.

Lakoff, George. 1970. Global rules. Lg. 46:626-39.

Langacker, R.W. 1969. On pronominalization and the chain of command. Modern Studies in English, ed. by D. Reibel, and S. Schane. Englewood Cliffs, N.J.: Prentice-Hall.

Postal, Paul. 1972. A global constraint on pronominalization. LI 3:35-60.

Rosenbaum, P.S. 1967. The Grammar of English Predicate Complement Constructions. Cambridge, Mass.: M.I.T. Press.

Ross, John. 1969. Guess who? Papers from the fifth regional meeting of the Chicago Linguistic Society, ed. by R. Binnick, et. al., Chicago: Department of Linguistics, University of Chicago.

------. 1972. Nouniness. (To appear)

Subbarao, K.V. 1974. Noun Phrase Complementation in Hindi. Urbana, Illinois: University of Illinois Ph.D. dissertation.

Vajpeyi, K.D. 1958. Hindī Shabdānushāsan. Banaras: Kāshī Nāgarī Prachāriṇī Sabhā. 1966 edition.

Verma, M.K. 1971. The Structure of the Noun Phrase in English and Hindi. Delhi: Motilal Banarasidass.

TOWARD STRUCTURING THE FORM AND FUNCTION OF CODE-MIXING:
AN INDIAN PERSPECTIVE

Braj B. Kachru

0. INTRODUCTION.[1] The formal and pragmatic aspects of language dependency
in linguistically pluralistic societies[2] have yet to be seriously studied
by linguists. The term 'language dependency' presupposes that there is a
hierarchy of languages and that each language is assigned a functional
role (or roles) in a multilingual person's restricted or extended spheres
of linguistic interaction.

The multilinguistic context of India provides a unique case of
language dependency, which has several aspects, e.g., educational, political
sociological, psychological and linguistic.

In South Asia language dependency has resulted in linguistic con-
vergence of primarily two types. The first type may be termed convergence
within the 'inner' language circle; that is, within the South Asian
languages. The second type may be termed the 'outer' linguistic imposition.
That means dependency on those languages which are outside the South Asian
language periphery. Convergence within the 'inner' language circle has
resulted mainly in two processes, viz., the Aryanization of the Dravidian
languages (e.g. Sridhar 1975) and the Dravidization of the Indo-Aryan
languages (e.g. Gumperz 1971). The extent and scope of such Sanskritization
and Dravidization has already been discussed in the literature at various
linguistic levels (see e.g., Emeneau and Burrow 1962; Gumperz and Wilson
1971; Sridhar 1975).

Convergence from the 'outer' circle involves several non-South Asian
languages; however, the main manifestation of this type of convergence is
seen in the Persianization and also in the Englishization (Anglicization)
of the languages of the 'inner' circle (B. Kachru 1975b). An aspect of
convergence with one language, English, of the 'outer' circle forms the
basis of this study.

1.0. TWO ASPECTS OF LANGUAGE DEPENDENCY: "CODE-SWITCHING" AND "CODE-
MIXING". In a speech community, language dependency is shown in two ways,
among others. First, a multilingual assigns areas of function to each

language which he uses to perform various roles. One might say that, by and large, the contextual units (B. Kachru 1965) in which each language functions are mutually exclusive, or dependent on the participants in a linguistically relevant situation. Second, language dependency might result in developing new, mixed codes of communication.[3]

A good example of the first type of dependency results in what is termed 'code-switching' (Gumperz 1964), In the literature this term has been used to denote the functional contexts in which a multilingual person makes alternate use of two or more languages. However, I am not concerned with that particular phenomenon of language dependency here.

The linguistic situation which I shall present here may be seen as an outcome of both language contact and code-switching. In other words, I am concerned with the formal manifestation of the functional uses of several languages by a multilingual person. I shall use the term 'code-mixing' for this aspect of multilingualism (B. Kachru 1975a and 1975b).

The term 'code-mixing' refers to the use of one or more languages for consistent transfer of linguistic units from one language into another, and by such a language mixture developing a new restricted -- or not so restricted -- code of linguistic interaction. Such 'mixed' codes have developed in several language areas in South Asia. One such very common code has been termed 'Hinglish'. Some Persianized varieties of South Asian languages may also be considered mixed codes in the same sense (B. Kachru 1975b). The transfer of units of one language into another language is conditioned by several linguistic, pragmatic and attitudinal considerations. I shall return to this point later.

The implications of code-mixing are sociolinguistically very important. In addition, this linguistic phenomenon also has implications for language dynamics and language change (see section 6.0).

2.0. TOWARD STRUCTURING CODE-MIXING. In the current literature, the discussion of code-mixing in South Asian languages is generally restricted to presenting various attitudinal positions on using the device of code-mixing in these languages (e.g., Raghuvira 1973). There are thus the arguments of the 'purists' and the 'non-purists' in favor of their respective positions concerning Suddh Hindi (High Hindi), Hindustani, or Englishized or Persianized Hindi. The phenomenon of code-mixing has

yet to be   viewed in a theoretical framework which would relate the
formal and functional aspects of such 'language-mixing' and view it in
a pragmatic perspective in terms of the linguistic needs of the speech
community which uses this language device for various types of interaction
within the speech community and also outside it.

In Firth (1957a and 1957b; see also fn. 3), and later in somewhat
modified form in Mitchell (1957), Halliday (1958), Ellis (1966) and
Kachru (1966) a schema has been presented toward delimiting texts with
reference to their contextually relevant categories and formal categories.
Firth has suggested the following categories for the context of situation
of a text.

    A. The relevant features of participants: persons, personalities.

       (i) Verbal actions of participants.

       (ii) Non-verbal actions of participants.

    B. The relevant objects.

    C. The effect of the verbal action.

Other features to be considered are:

    A. Economic, religious, social structures to which participants belong

    B. Types of discourse: monologue, narrative.

    C. Personal interchange: age of participants.

    D. Types of speech -- social flattery, cursing, etc.

Firth would also add creative effect or effective result as a
link with the context of situation in order to observe the movements of
participants and events, and possibly additional features in an extended
context of situation.

One might ask how this schema can be applied to the situation of
code-mixing in South Asia, which is our primary concern. Code-mixing
is a role-dependent and function-dependent linguistic phenomenon. In
terms of role, one has to ask who is using the language and in terms of
function, one has to ask what is to be accomplished by the speech act.
In terms of role, then, the religious, social, economic and regional
characteristics of the participant in a speech act are crucial. On the
other hand, in terms of function, the specialized uses to which the given
language is being put determines the code-mixing. In a sense, then, in
several linguistically relevant situations there is a mutual expectancy

between the formal characteristics of the language (in this case, a
code-mixed language) and its function.

2.1. *Code-mixing and the context of situation:* I shall attempt to
discuss the phenomenon of code-mixing in the theoretical framework of
the 'context of situation' originally presented by Malinowski (1935) and
modified in linguistic terms by Firth (1957a and 1957b). I feel
encouraged to do so now since only a decade ago (see Langendoen 1968,
especially Sections 2 & 3) what were considered the linguistic 'sins'
of Firth seem to have become the cardinal points of our current linguistic
paradigm. It may, therefore, be in order to take another look at the
Firthian concept of the context of situation with special reference to
the phenomenon of code-mixing.

The concept, context of situation, provides a framework for relating
language use and linguistic form to the 'immediate' linguistically relevant
situation and also to the 'wider' context of culture. Elucidating the
concept, Firth writes (1957b:175-76),[4]

> The context of situation...is not merely a setting,
> background or 'backdrop' for the 'words'. The text in the
> focus of attention on renewal of connection with an instance
> is regarded as an integral part of the context, and is observed
> in relation to the other parts regarded as relevant in the
> statement of the context.

It seems to me that in order to provide linguistically and contextually
adequate explanations for code-mixed language-types it would be appropriate
to relate such language-types to what I have earlier termed 'contextual
units' (B. Kachru 1965).

By a contextual unit, we mean those features of a text which
contribute to its being assigned to a particular function. These features
may, for convenience, be termed the contextual parameters of a text.
These would comprise those linguistically relevant clues, such as the
participants, their sex, their position on the social, caste or
religious hierarchy. In abstracting these categories we must concentrate
only on those clues which are linguistically justifiable. We might then
view a speech act in terms of clear end-points which have, on the one
hand, a time-dimension, and on the other hand, relevance with reference
to the role-relationships obtaining among the participants engaged in
the speech act. Let me give two illustrations to make this point clearer:

The speech function of greetings or blessings have well-defined beginnings
and ends. In addition, greetings and blessings also provide clues about
the people involved in the exchange of such speech functions. One might
claim that, to a large extent, such speech functions are both language-
bound and culture-bound. On the other hand, the concept of register,
to a large extent, is language-free and culture-free, and the participants
are primarily bound together by language use -- for example, those who
use the register of law or aviation engineering. Note that code-mixing
seems to identify not only the use of the language but also the user, since
it involves both an attitudinal reaction toward a language-mixer and
also the registral use of language.

The appropriateness of a code-mixed language type to a specific
situation may be judged by *contextual-substitution* and *textual substitu-
tion*.

In certain contextual units, a multilingual person has the
possibility of a choice between code-mixed (say Hindi and English or
Persian) or non-code-mixed languages. In such situations, the selection
of a particular 'code' is determined by the attitude of a person toward
a language (or toward a certain type of code-mixing), or the prestige
which a language (or a type of code-mixing) has in a speech community.

2.2. *Code-mixing and formal cohesion:* There are several questions which
one might ask about the formal characteristics of code-mixing. The first
question is: What is the distinction between 'borrowing' and code-mixing?
The second question is: What are the criteria for considering code-
mixing functionally crucial for a speech community? In other words, how
does one judge the functional and formal appropriateness of code-mixing
as an additional communicative device in various speech communities?

Code-mixed language types can easily be considered as examples of
extended borrowing not restricted to the lexical level of a language.
Borrowing is the initial step toward code-mixing. It is, however, not the
only criteria. In the case of several South Asian languages, for example,
Dutch, Portuguese, and French borrowing has not resulted in any serious
code-mixing. On the other hand, borrowing from English and Persian has
resulted in cultivation of special language types (see Bahri 1960 and
B. Kachru 1975b).

Formal appropriateness in code-mixing may be judged by using the concept of formal cohesion. The formal cohesive characteristics -- lexical or grammatical -- may be abstracted from code-mixed discourse types, register types or speech functions (B. Kachru 1966:268-69). There is, therefore, a linguistic expectancy and dependency between the formal characteristics and the functional characteristics of such (code-mixed) language types. In other words, a particular type of lexical and grammatical cohesion is associated with a specific type of discourse or register as a speech-function.

3.0. FORMAL MANIFESTATIONS OF CODE-MIXING. In linguistic terms code-mixing involves functioning, at least, in a disystem, and as a consequence, developing another linguistic code comprising formal features of two or more codes. A linguistic code developed in this manner then developes a formal cohesion and functional expectancy. In such a situation one language functions as an absorbing language since the 'mixed' items are generally assimilated into its system. One might then say that the function of code-mixed languages is between what is termed 'diglossia' (Ferguson 1959) and code-switching. In a diglossia situation there is a situationally-determined use of two codes, and the codes involved are functionally mutually exclusive. Explaining this phenomenon, Ferguson says that in such a situation,

> . . . two varieties of language exist side by side throughout
> the community, with each having a definite role to play.
> (1959:429).

In code-switching, on the other hand, the functional domains of the languages involved are determined by linguistically pluralistic situations, say, for example, the Punjabi-Hindi code-switching in Hariana or in the Punjab; or the Telugu-Dakhini code-switching in Hyderabad.

In a given multilingual situation, it is difficult to say that a person will code-mix in only one or two acquired languages. The tendency is to code-mix in all the languages in which a person code-switches with proficiency. Consider, for example, the case of Punjabi and Hindi code-switching. In these languages, code-mixing is not restricted to these two only, but involves English and Persian as well.

3.1. *Process of mixing:* I shall discuss below the various linguistic units and processes which are involved in code-mixing. The illustrations of code-mixing provided below are primarily from Hindi and English.

(a) <u>Unit Insertion</u>: This refers to the introduction of a grammatical unit above a word in a sentence (e.g., a noun phrase or a verb phrase) from another language.[5]

NP Insertion

1. ṭenk va reḍar prāpt karne kī bhī yōjnā (<u>NBT</u>, 8.3.75)
   tank and radar procure do of also scheme

2. prez.iḍanṭ haus mẽ, proṭōkōl hai magar vājib sā (<u>D</u>, 26.3.72)
   president house in   protocol is   but desirable like

VP Insertion

3. vipaksh dvārā vāk auṭ (<u>NBT</u>, 7.3.75)
   opposition by walk out

(b) <u>Unit Hybridization</u>: This refers to the use of code-mixing within a unit, say, for example, a noun phrase, a verb phrase or a compound verb. Consider, for example:

4. isliye   čans   lene ke sivā hamāre pās kōī upāy nahī thā (<u>D</u>, 17.6
   therefore chance take except our near any alternative not was

5. sarkas aur numāyiš yahā phēl hai (<u>D</u>, 17.6.73)
   circus and exhibition here fail are

6. tisrē din kuch zarūrī   drāpht ṭayp karvāne the (<u>SH</u>, 13.6.71)
   third day some important draft type do (caus.) were

The process of unit hybridization has developed into an extremely productive process for 'mixing' Indian languages such as Hindi-Urdu with the non-Indian languages, English and Persian. In Kashmiri an identical process is applied to code-mixing with English and Persian. The following examples are illustrative: <u>ṭebəl kursī</u> 'table and chair'; <u>zilā kəmīṭī</u> 'district committee'; <u>səkūl bhavan</u> 'school building'; <u>halkī prezidant</u> 'a president of the 'halqua''. This process is not medium-restricted and is common in both spoken and written languages. Let us consider some such hybridized items from Hindi-Urdu here. This process is most productive in producing what are termed 'compound verbs' and 'conjunct verbs' in Hindi-Urdu (Y. Kachru 1966). Examples of the first type are <u>expect karnā</u> 'to expect'; <u>bore karnā</u> 'to bore'; <u>satisfy karnā</u> 'to satisfy.' Examples of the second type are <u>holiday lenā</u> 'to take a holiday; <u>permission denā</u> 'to grant permission'; <u>leave denā</u> 'to grant leave.'

(c) Sentence Insertion: By sentence insertion is meant inserting
a sentence of one language into another language. The following examples
include sentences of English inserted into Hindi.

7.   purānī hai tō kyā   huā, phain   to   hai
     old   is so what happened fine however is
     But I. do not like Rajesh Khanna. (D, 27.4.73)

8.   paṛhne mē simā kī bahut ruci   hai vah kahtī haī
     study in Sima of much interest is she says
     Education is necessary for life. (D, 29.4.73)

9.   yəh ek nāzuk māmlā haī,
     this one delicate matter is
     Let's not talk on [sic] it. (D, 17.6.73)

(d) Idiom and Collocation Insertion: The idioms and collocations of
English have generally a higher frequency of occurrence in code-mixed
Indian languages than, say, proverbs. The proverbs of Persian are,
however, inserted in certain styles of Kashmiri (both spoken and written)
and Hindustani. Consider, for example, the following idioms.

10. aur maī parivartan ghar se šaru karūgā kyũki
     and I   change   home from begin will do because
     Charity begins at home. (D, 29.4.73)

11. ...apnī bāt kā samarthan youth is blunder kah kar kartī haī (D, 29.4.73)
          own story of support   . . . . having said does aux

12. māi kah rahā hũ ki one in hand is two in the bush.
     I   say ing am that . . . .

13. suniye,   āp kām kariye sab   ṭhik hōgā after all Rome was not
     Listen (hon.) you work do everything fine will be . . . .
       built in a day.

      . . . .

14. tum kō ho kyā ga yā why do you cry over spilt milk sab ṭhĩk
     to you happen what   . . . . all fine
       ho jāyegā
       will become

15. āj. kal kōngres (congress) dog in the manger policy adopt
     These days congress . . . .
       kar rahā hai, yeh ṭhĩk nəhĩ
       do ing is this good not

(e) <u>Inflection attachment and reduplication</u>: A number of English
and Persian borrowings in South Asian languages have undergone the in-
flectional processes of the South Asian languages in such code-mixing,
e.g., səkūlī ḍigrī vālā (a person who possesses a school degree; D, 12.
8.73). A discussion on such inflection is presented in Bhatia (1967)
and B. Kachru (1975a and 1975b) for English borrowings, and Bahri (1960)
for the Persian borrowings.

The process of reduplication, which is very common in South Asian
languages, is applied to English items to convey the semantic function
of indefinitization, e.g.,

16. ...us par savār   ek čālak kaksh mẽ gayā aur pūchā,
         on that riding   one driver room   in went and asked
     peṭrōl   veṭrōl bhar liyā hai (D, 17.6.73)
     petrol   and the like filled has
17. ...akṭing (acting) -- vekṭing   mãi k'ā j̃ānũ rē (SH, 29.7.73)
         acting   and the like I what should know hey

4.2. *Lexicalization:* I shall use the term 'lexicalization' to refer
to lexical infusion in a language from a lexical source (or sources)
not native to the particular language. For example, English and Persian
lexical strata in Hindi or Kashmiri.

In South Asia this infusion has worked in several directions, e.g.,
the Indianization of English (B. Kachru 1965 and 1966), and the
Persianization and Engishization of the Dravidian and Indo-Aryan languages
(Bahri 1960; Sridhar 1975).

I shall mainly concentrate here on the type of lexicalization which
has resulted in introducing additional lexical strata in a language.
In several South Asian languages there are such co-existing lexical
strata which are to a large extent functionally determined. The role
of these co-existing (but functionally distinct) lexical strata can be
better explained in the framework of the contextual units related to
the overall context of situation. The choice of a particular lexical
stratum, out of the total range, is conditioned by appropriateness of
several types, e.g., the participants' sex, religion, caste and occupation.

The following examples from Sanskritized, Persianized and Englishized
verb formations with the structure V+operator (Y. Kachru 1968) are
illustrative.

Sanskritized	Persianized	Englishized	
ārambh karnā	śarū karnā	begin karnā	'to begin'
adhikār karnā	kabzā karnā	control karnā	'to control'
bhūl karnā	galatī karnā	mistake karnā	'to make a mistake'
cintā karnā	phikir karnā	worry karnā	'to worry'
dayā karnā	raham karnā	pity karnā	'to pity'
ghriṇā karnā	naphrat karnā	hate karnā	'to hate'

4.0. MOTIVATIONS FOR CODE-MIXING. The motivations for code-mixing are primarily of two types, i.e., attitudinal and linguistic. However, to a certain extent, these two tend to overlap. The attitudinal and pragmatic reasons for code-mixing are more or less identical to the reasons which encourage code-switching. The question I am asking here is: What are the linguistic motivations for code-mixing? It seems to me that basically there are three motivations: role identification, register identification, and desire for elucidation and interpretation.

The parameters for role identification are social, registral and educational. The languages which a multilingual person 'mixes', contribute to placing him in the hierarchy of the social network in which he functions; it also marks his attitude and relationship toward the participants in a speech act, and, consequently, the attitude of the participants toward him.

I shall attempt to illustrate this point by three types of code-mixing current in India and the attitudinal consequence of each of these. First, the code mixing of a South Asian language with English. In attitudinal terms it is a mark of modernization, high socio-economic position and identity with a certain type of elite group, and in stylistic terms it marks what may be termed 'deliberate' style. It is used as a marker of 'modernization', or to mark the registral features of special language types. Second, the code-mixing of a South Asian language with Persian. This identifies a person in terms of his religion and/or occupation. However, on the cline of modernization this type of code-mixing is lower than code-mixing with English. Stylistically the more Perso-Arabic influence one shows, the more exclusive the style becomes in terms of the participant and role. The Perso-Arabic style is, however, widely used in the legal register. Third, the code-mixing of South Asian languages with Sanskrit. This again is a religion and caste-marking feature, and to some extent also a marker of exclusiveness. In stylistic terms

it is identified as <u>panditāu</u> (or 'pedantic') style.

A large number of South Asian languages have developed these three linguistic role-identifying code-mixed styles of language. Consider, for example, Bengali (Dil 1972); Hindi (Bahri 1960; Bhatia 1967; B. Kachru 1975b); Kannada (Sridhar 1975) and Kashmiri (B. Kachru 1973).

It seems to me that it might be more insightful to characterize several Indian languages and dialects on the basis of the type of code-mixing involved in each caste and religious dialect, rather than simply on the basis of caste and religion per se. However, in certain speech communities a neat dichotomy and categorization is not possible, e.g., as in Kashmiri.

The use of the terms 'register-identification' and 'registral characteristics' with reference to code-mixing needs further explanation. It can be demonstrated that one formal clue for the identification of various 'register-types' is the type of code-mixing involved. For example, in the case of Hindi, code-mixing with English is an essential distinguishing feature of technological, scientific and some restricted newspaper registers (e.g., sports reporting). The following are illustrative.

20. Amresh apni kuch meḍikal (medical) ki kitabe, ḍrag (drug) kampaniya (company + Hindi pl. marker) ke keṭalag (catalogue) ke pulinde, stetheskop (stethescope) sambhale. . . (<u>S</u>, 4.1972)

21. aiye, glaiḍing (gliding) kare, dilli ke glaiḍing klab (gliding club) me (<u>D</u>, 17.6.74).

22. ḍaktar (doctor) sahib āp us miṭing (meeting) mɛ̃ prezanṭ (present) nahĩ the. baḍā intresṭing (interesting) ḍiskašan (discussion) huā. spīkar (speaker) ke point aph viv (point of view) se agrī (agree) nahĩ kar sakā aur maine phõrsphul (forceful) spīč (speech) ḍelivar (deliver) ki āuḍiyans (audience) waz (was) mūvḍ (moved) kampliṭli (completely) and the havs (house) waz (was) in my phevar (favor). (Bhatia 1967:56).

23. ɛknāmiks (economics) ek aisā subǰakṭ (subject) hai ǰiskī uṭiliṭī (utility) ḍe ṭu ḍe (day to day) laiph (life) mai riyalaiz (realize) kī jā saktī hai. (Bhatia 1967:57).

In elucidation and interpretation code-mixing provides two type clues. First, in several South Asian languages, <u>register stabilit</u>

is yet to be attained, therefore, English or Persian is used to elucidate a term or a concept. Second, English or Persian is used as a device for reducing the possibility of ambiguity in a construction. Consider the following:

24. . . . yeh ṭhōs kārban ḍāyaksaiḍ arthāt sūkhī baraph (D̲, 7.11.71).
         this solid carbon dioxide meaning dry ice

25. jahā glaiḍar kō sahārā rah j̄ātā haĩ, keval tharmal karanṭ kā
     where glider to support remain aux, only thermal current of
        arthāt garam havaõ kī tarangẽ . . . (D̲, 17.6.73).
        meaning hot winds of waves.

26. hamārī rājnīti āj̄ bhī anek ghoṣṇāõ tathā samāj̄vādī
     our   politics today also many slogans and socialist
        āḍambarõ kẽ bād bhī mūltah viṡiṣṭ vargīya hai (D̲, 17.2.72).
        pretences of after even mainly elitist   is

27. . . . mai bār bār tamāṡā yā līlā ke rũp ko . . . (D̲, 26.5.74).
        I   again again scene or miracle of form obj. marker.

The items <u>arthat</u> ('meaning') <u>ya</u> ('or') introduce an elucidation, translation or technical equivalent in another code.

5.0. CONSTRAINTS ON CODE-MIXING: A CLINE OF ACCEPTABILITY. There seems to be a cline of acceptability in code-mixing. It is not an open-ended process either grammatically or lexically (especially in collocating lexical terms). The grammatical constraints, however, are not necessarily of the type 'yes' or 'no'. The reaction toward the code-mixed constructions is in the nature of 'sure', 'yes, depends', 'no!' or a response of 'It is an odd mixing'. The following constraints are illustrative:

    1. *Rank-Shift Constraint:* The rank-shifted constructions are not from English.

    *28. voh kitāb which is on the table merī hai.
        that book . . . . mine is

    *29. merā voh amrikī dost who lives in Chicago āj̄ hamāre ghar ayegā.
        my that American friend . . . . today our house will come

    2. *Conjunction Constraint:* In code-mixing of South Asian languages and English conjunctions (and, or, etc.) are not used to conjoin two NPs.

    *30. NP and NP aye the.
        NP and NP came were

*31. mai usko akhbār detā but diyā nahī.

     I to him newspaper would give gave not

Note, however, that conjoining two sentences from two languages is common. Consider

32. bhai, khānā khao and let us go.

     mode of address. meal eat . . .

33. John abhi ayā nahī but I must wait for him.

     John yet came not . . . .

Note that the conjoining items are from the same language from which the conjoined sentence is introduced. The following sentences are, therefore, not the preferred constructions:

*34. John abhī āyā nahī lekin I must wait for him.

     John yet came not but . . . .

In the use of conjunction markers in code-mixing a distinction must be made between those languages the items of which have been completely assimilated (e.g., Persian in Kashmiri) and those the items of which are yet to be assimilated (e.g., English in Kashmiri). The Persian conjunction markers are very frequent in Hindi and Kashmiri and native speakers of these languages are hardly aware of their sources.

4. *Determiner Constraint:* There are several constraints on the items which can be code-mixed in a noun phrase in pre-head positions.

*35. vahā̃ five sundar laṛkiyā̃ paṛh rahī thī̃ (numeral).

     these.... beautiful girls reading were

*36. tum this sundar laṛki ki bāt kar rahe the? (Demonstrative).

     you .... beautiful girl of talking were

5. *Complementizer Constraint:* There are some constraints on code-mixing in complementizers. Consider the following:

(a) If the two sentences are from the same source languages, a complementizer from another source is not inserted.

*37. mujhe lagtā hai that rām kal āyegā.

     to me seems aux .... Ram tomorrow will come

(b) Given two sentences from two sources (say, Hindi and English) the preference is given to a complementizer from the language used in the first sentences, e.g.,

38. mujhe lagtā hai ki rām will come tomorrow.

     to me seems aux that Ram . . . .

This is especially true with verbs of perception (e.g., sunnā 'to hear', socnā 'to think'; or verbs of saying (e.g., kehnā 'to say', batānā 'to tell').

6.0. LANGUAGE DYNAMICS AND LANGUAGE CHANGE. One might ask now: linguistically speaking, what has been the influence of code-mixing on South Asian languages? There is a long tradition of code-mixing between Persian, English and the languages of the South Asian sub-continent. Code-mixing has initiated two major processes which have resulted in language change. The first process is that of Persianization and the second that of Englishization. As a result of these two processes, the South Asian languages have been influenced at all of the linguistic levels.

6.1. *Phonology:* There are several studies which discuss the assimilation of Persian and English loanwords in the phonological system of South Asian language. (For details see Bahri 1960; Bhatia 1967; and B. Kachru 1975b).

6.2. *Lexis:* There is mutual expectancy between the choice of the lexical range and the register or discourse types. The Sanskrit lexical spread is associated with literary criticism, philosophical writing and with. certain types of broadcasting. In certain languages (e.g., Telugu) the Sanskrit source items also mark a distinction between the formal and colloquial styles of language. The English source items have high frequency in the registers of social sciences and technology.

6.3. *Syntax:* By and large the syntax of a language is more resistant to change than are the other levels of language. So far, very little research has been done to investigate the impact of code-mixing and code-switching on the syntax of South Asian languages. The following syntactic characteristics of Hindi are, however, attributed to the influence of English or Persian.

(a) SVO structure: The surface word order of Hindi is SOV as opposed to the SVO order of English. In recent years in various styles of Hindi there is a tendency to use SVO structure. (Mishra 1963:175-77; Tiwari 1966:296-300).

(b) Impersonal constructions: Traditionally in Hindi active forms are used where English uses what are termed 'impersonal constructions'

e.g., <u>it is said</u>, <u>it has been learnt</u>. In Hindi the translation 'equiva-
lents' of these English constructions are <u>kəhte h̃ãĩ</u>, <u>sunā hai</u>. However,
in the newspaper register of Hindi it is not uncommon to find constructions
such as <u>kahā jātā hai</u> (it is said); <u>dekhā gayā hai</u> (it has been seen);
or <u>sunā gayā hai</u> (it has been learned).

(c) <u>Indirect speech</u>: Traditionally in Hindi discourse the
distinction between <u>direct</u> and <u>indirect</u> speech is not made. In modern
prose this distinction has been introduced, e.g., <u>NP said that he will
read</u> as opposed to <u>NP said that I will read</u>.

(d) <u>Post-head modifier jo</u>: The development of the 'jo' (<u>who</u>)
construction in Hindi in the post-head position is attributed to the
influence of English by some scholars (e.g. Tiwari 1966:293), other
scholars believe that this construction may have developed due to the
Persian influence (e.g. Guru 1962:530-31). Consider, e.g.,

    39.   vəh laṛkā jō ṭebal par beṭhā hai   merā bhaī hai
           that boy who table on sitting is   my brother is
           That boy who is sitting on the table is my brother.

(e) <u>Passivization with 'dvārā'</u>: In Indo-Aryan languages there is
a tendency to delete the agent in passive constructions. This applies
to Hindi. The <u>dvārā</u> (<u>by</u>) construction is considered an influence of
English and this construction is now frequently used. Consider, for
example,

    40.   yeh nāṭak bhārtendu dvārā likhā gayā hai.
           This play has been written by Bhartendu.

(f) <u>Parenthetical clauses</u>: There are two views on the development
of parenthetical clauses in Hindi. Some scholars claim that the intro-
duction of these clauses is due to English influence. Others disagree
and consider these as typically Indo-Aryan constructions. Such clauses
are also present in Lalluji Lal's (1763-1835) prose. (See also Tiwari
1966:297-98; for the Persian influence on Hindi syntax, see ibid.
294-96).

The identical tendencies toward English and/or Persian influence
may be traced in other South Asian languages, too. Consider, for example,
the word order of Kashmiri. The preferred word order is SVO which seems
to be a result of the influence of Persian. This is especially true of
the literary style. (B. Kachru 1973).

7.0. 'SWITCHING' WITHOUT 'MIXING': We still have to find methodological techniques to structure some aspects of code-mixing for which one does not necessarily find formal evidence. I have earlier used the term 'shift' for this process (B. Kachru 1965:402-3). The process of shifting does not result in the surface realization of code-mixing. But two languageswhich go through the processes of code-mixing and code-switching also go through the process of shifting. It manifests itself in loan shifts, and loan translations. In South Asia this process works in both the directions. On the one hand, it is used to Indianize the English language, (B. Kachru 1965, 1966) and on the other hand, it is used to Englishize the South Asian languages (B. Kachru 1975b). Consider, for example, the loan translations such as the following śīt yudh (SH, 13.6. 71) and prēm-trikōṇ (ibid.): these are translation equivalents of English cold war and love-triangle respectively. The process of shift from English is used in several registers of Hindi. In addition, a number of such formations are used in Hindi specifically in those contexts which are relevant to western culture, e.g., suprabhāt 'good morning'; karmardan 'handshake'; madhurāt 'honeymoon!.

8.0. CONCLUSION: The restricted data on code-mixing presented above focuses on one thing -- that in any descriptively adequate statement on code-mixing the interrelationship of role, form and function are crucial. It has been argued that a statement which includes context as a congruent level for such a language contact situation as exists in code-mixing is not only relevant but also helps in an insightful understanding, in functional terms, of such uses of language, which some scholars, in India and elsewhere, have termed 'odd-mixing' because such a 'mixing' should not occur in the 'pure' or 'standard' language (Raghuvira 1973).

    In present sociolinguistic research it may be worth our while to investigate how the Firthian concepts of 'the context of situation' and of the 'renewal of connection' between form and function can be used to achieve a more insightful understanding of language contact situations and linguistic interaction. After all, it may be recalled that what is termed 'sociolinguistics' on this side of the Atlantic has always meant 'general linguistics' on the other side of the ocean. That a process of rethinking has started is obvious in the following observation of Labov (1970:152):

In recent years, there has developed an approach to linguistic research which focuses upon language in use within the speech community, aiming at a linguistic theory adequate to account for this data. This type of research has sometimes been labelled as 'sociolinguistics,' although it is somewhat misleading use of an oddly redundant term. Children raised in isolation do not use language; it is used by human beings in a social context, communicating their needs, ideas and emotions to one another. The egocentric monologues of children appear to be secondary developments derived from the social use of language (Vygotsky 1962:19) and very few people spend much time talking to themselves. It is questionable whether sentences that communicate nothing to anyone are a part of language. In what way, then, can 'sociolinguistics' be considered as something apapt from 'linguistics'?

NOTES

[1] An earlier version of this paper was presented at the Linguistics Section of the University of Kentucky Foreign Language Conference, April 24-27, 1975.

[2] Terms such as 'unit' have been used here in the sense in which they are used in Halliday, 1961.

[3] Note that in such codes one can also include specialized codes such as pidgins and creoles.

[4] For further discussion see relevant sections in Firth 1930 and 1937 and the following papers in Firth 1957, 'The technique of semantics'; 'Modes of Meaning'; 'General linguistics and descriptive grammar'. There is also discussion on it in Ellis 1965; Halliday 1959; B. Kachru 1966; Lyons 1966 and Mitchell 1957.

[5] I have used the following abbreviations for the sources of illustrations given in this paper: D, Dharmayug, Bombay; NBT, Nav Bharat Times, New Delhi; S, Sarita, New Delhi; SH, Saptahik Hindustan, New Delhi.

REFERENCES

Bahri, Hardev. 1960. Persian Influence on Hindi. Allahabad: Bharati Press Publications.

Bazell, C.E. et al. eds. 1966. In Memory of J.R. Firth. London: Longmans.

Bhatia, Kailash Chandra. 1967. A Linguistic Study of English Loan-words in Hindi (in Hindi). Allahabad: Hindustani Academy.

Dil, Afia. 1972. The Hindu and Muslim Dialects of Bengali. Ph.D. Dissertation, Stanford University.

Ellis, Jeffrey. 1965. 'On contextual meaning'. In C.E. Bazell, et. al. eds. 1966.

Emeneau, Murray B. 1966. 'India as a linguistic area', Language. 32:3-16.

Ferguson, Charles A. 1959. 'Diglossia'. In Dell Hymes, ed. 1964. 429-39.

Firth, John R. 1957a. Papers in Linguistics, 1934-51. London: Oxford University.

------. 1957b. 'A synopsis of linguistic theory, 1930-55'. In Palmer, F.R. ed. 1968.

------. 1951. 'Modes of meaning'. In Firth, 1957a.

------. 1950. 'Personality and language in society'. In Firth, 1957.

------. 1935. 'The technique of semantics'. In Firth, 1957a.

Fishman, Joshua A. ed. 1971. Advances in the Sociology of Language, Vol. I. The Hague: Mouton.

Gumperz, John J. 1964. 'Hindi-Punjabi code-switching in Delhi'. In H.G. Lunt ed. 1964. 1115-24.

Gumperz, John J. and Wilson. 1971. 'Convergence and Creolization: a case from Indo-Aryan/Dravidian border'. In Dell Hymes ed. 1971. 151-67.

Guru, Kamtaprasad. 1962. Hindi Grammar (in Hindi). Benaras: Nagari Pracharani Sabha.

Halliday, M.A.K. 1961. 'Categories of the theory of grammar', Word. 17:241-92.

------. 1959. 'The language of the Chinese secret History of the Mongols'. Philological Society Publication No. 17. Oxford: Basil Blackwell.

Hymes, Dell ed. 1964. Language in Culture and Society: A Reader in Linguistics and Anthropology. New York: Harper & Row, Inc.

------. ed. 1971. Pidginization and Creolization of Languages. London: Cambridge University Press.

Kachru, Braj B. 1975a. 'Lexical innovations in South Asian English'. International Journal of the Sociology of Language. 4, 1975.

------. 1975b. 'The Englishization of Hindi: language rivalry and language change', to appear in I. Rauch et al. eds. Linguistic Method: Papers in Honor of Herbert Penzl. The Hague: Mouton.

------. 1973. An Introduction to Spoken Kashmiri (preliminary version). Urbana: Department of Linguistics, University of Illinois.

------. 1969. 'English in South Asia'. In Sebeok. 1969.

------. 1966. 'Indian English: a study in contextualization.' In Bazell et al. eds. 1966.

------. 1965. The Indianness in Indian English. Word. 21:391-410.

Kachru, Yamuna. 1968. An Introduction to Hindi Syntax. Urbana: Department of Linguistics, University of Illinois.

Labov, William. 1970. 'The study of language in its social context'. In Fishman, J.A. ed. 1971:152-216.

Langendoen, D. Terence. 1968. The London School of Linguistics: A Study of the Linguistic Theories of B. Malinowski and J.R. Firth. Cambridge, MA: The M.I.T. Press.

Lunt, H.G. ed. 1964. Proceedings of the Ninth International Congress of Linguistics. The Hague: Mouton.

Lyons, John. 1966.''Firth's theory of 'meaning''. In C.E. Bazell et al. eds. 1966.

Malinowski, B. 1935. Coral Gardens and Their Magic. A Study of the Methods of Tilling and Soil and of Agricultural Rites in the Trobriand Islands. Vol. 2. The Language of Magic and Gardening. London: Allen and Unwin.

------. 1923. The problem of meaning in primitive languages. In. C.K. Ogden and I.A. Richards. 1923. 451-510.

Mishra, Vishwanath. 1963. The Influence of English on Hindi Language and Literature 1870-1920 (in Hindi). Dehradun: Sahitya Sadan.

Mitchell, T.F. 1957. 'The language of buying and selling in Cyrenaica: a situational statement', Hespéris, 44:31-71.

Ogden, C.K. and I.A. Richards. 1923. The Meaning of Meaning. London: Kegan Paul.

Palmer, F.R. ed. 1968. Selected Papers of J.R. Firth, 1952-1959. Bloomington: Indiana University Press.

Raghuvira. 1973. 'Why an Indian terminology?' In Bholanath Tiwari, et al. eds. Technical Terminology: Some Problems (in Hindi). Delhi: Sabdakar, 85-84.

Sebeok, Thomas. 1969. Current Trends in Linguistics. Vol. V. South Asia. The Hague: Mouton.

Sridhar, Shikaripur N. 1975. 'On the Aryanization of the Kannada lexicon: a study of the Hindi, Urdu loan words in Kannada'. To appear in H. Van Olphen ed. 1975.

Shukla, R. ed. 1947. Hindi-Speakers, Beware! (in Hindi). Benaras: Kashi Nagari Pracarani Sabha.

Tiwari. 1966. The Hindi Language (in Hindi). Allahabad: Kitab Mahal.

Van Olphen, H. ed. 1975. In press. Language Borrowing: Papers Presented at ACTUAL 1974. Austin: Center for Asian Studies, University of Texas.

ON THE SEMANTICS OF HINDI-URDU cəlna[*]

Rajeshwari Pandharipande

The verb cəlna 'to go' is one of the most frequently used verbs
in Hindi-Urdu. There are, however, no linguistically oriented studies
on its semantic properties. Since it shares the semantic feature
[+ movement] with jana 'to go' it is usually treated as its synonym.
This treatment is widely accepted in the traditional grammars.[1]
However, Vajpeyi (1967:467) points out that cəlna 'to go' behaves
somewhat differently in some situations. Also Sinha (1972:351) presents
relevant data in which cəlna disambiguates the sentences, if substituted
for jana.[2]

It is obvious that the semantic interpretation of cəlna is not as
straightforward as was assumed by traditional grammarians.

In this paper I present evidence to show that the apparent
discrepancies found in the behaviour of cəlna are primarily due to two
reasons; first its treatment as a nuclear verb and second its treatment
as a synonym of jana.[3]

This paper has been divided into three sections. In Section I,
I present evidence to prove that it is necessary to assign more than one
underlying semantic representation to cəlna and that such an assumption
would resolve many apparent discrepancies found in the data. In II, I
argue that cəlna behaves quite differently from jana. In the underlying
semantic representation of cəlna, in addition to the feature [+ movement],
a feature [+ inclusive] is needed which indicates that either the speaker
or the hearer is included along with the surface subject of cəlna. Thus
it is not plausible to treat it as a synonym of jana, which is exclusive
of the speaker or hearer. In Section III, I present some arguments for
identifying this part of the underlying semantic representation as a
presupposition as opposed to either logical implication or entailment.

I

Consider the following sets of sentences:

I.   (1) meena ghas pər cəltī hɛ.
        Meena grass on move is.
        Meena moves on the grass.

(2) ga<u>r</u><u>I</u> <u>ghas</u> p<u>ə</u>r c<u>ə</u>l<u>tI</u> h<u>ɛ</u>.
    cart grass on move is.
    The cart moves on the grass.

II. *(3) <u>meena</u> <u>Chicago</u> c<u>ə</u>l<u>tI</u> h<u>ɛ</u>.
      Meena Chicago go is.
      Meena goes to Chicago.

    *(4) <u>kar</u> <u>Chicago</u> c<u>ə</u>l<u>tI</u> h<u>ɛ</u>.
      car Chicago move is.
      Car moves to Chicago.

III. (5) <u>meena</u> <u>Chicago</u> c<u>ə</u>l <u>rəhI</u> h<u>ɛ</u>.
      Meena Chicago move prog. is.
      Meena is going to Chicago.

    (6) <u>meena</u> <u>ghas</u> p<u>ə</u>r c<u>ə</u>l <u>rəhI</u> h<u>ɛ</u>.
      Meena grass on move prog. is.
      Meena is walking on the grass.

    (7) h<u>ə</u>m <u>Chicago</u> c<u>ə</u>l r<u>ə</u>he h<u>ɛ̃</u>.
      we Chicago move prog. are.
      We are going to Chicago.

    (8) h<u>ə</u>m <u>ghas</u> p<u>ə</u>r c<u>ə</u>l r<u>ə</u>he h<u>ɛ̃</u>.
      we grass on move prog. are.
      We are walking on the grass.

    *(9) <u>kar</u> <u>Chicago</u> c<u>ə</u>l r<u>ə</u>h<u>I</u> h<u>ɛ</u>.
      car Chicago move prog. is.
      Car is moving to Chicago.

    (10) <u>kar</u> <u>ghas</u> p<u>ə</u>r c<u>ə</u>l r<u>ə</u>h<u>I</u> h<u>ɛ</u>.
      car grass on move prog. is.
      Car is moving on the grass.

IV. (11) <u>meena</u> <u>Chicago</u>   c<u>ə</u>leg<u>I</u>.
      Meena Chicago move will.
      Meena will go to Chicago.

    (12) h<u>ə</u>m <u>Chicago</u> c<u>ə</u>l<u>ẽ</u>ge.
      we Chicago move will.
      We will go to Chicago.

*(13) <u>kar</u> <u>Chicago</u> <u>cəlegî</u>.

　　　car Chicago move will.

　　　Car will move to Chicago.

*(14) <u>meena</u> <u>Chicago</u> <u>cəlî</u>.[4]

　　　Meena Chicago move+past.

　　　Meena moved to Chicago.

V.　(15) <u>Chicago</u> <u>cəlo</u>.

　　　Chicago go.

　　　Go to Chicago.

　(16) <u>kya</u> <u>vəh</u> <u>Chicago</u>　<u>cəle</u>?

　　　Q　she Chicago move+subjunctive

　　　Should she go to Chicago?

Traditional grammars would fail to account for the ungrammatical sentences in the data above, because in the framework of <u>cəlna</u> as a nuclear verb, all those sentences would be predicted to be grammatical. Traditional grammars should either treat these as exceptions or place heavy constraints on the behavior of <u>cəlna</u>. For example, the grammaticality of the sentences in I vs. the ungrammaticality of the sentences in II can be explained only if there is a constraint on <u>cəlna</u>, namely, <u>cəlna</u> involves a kind of movement which can be modified by a place, but not a directional adverbial. The set of sentences in group I involves place, while the ones in group II involve direction. However such an assumption would not hold true in the case of the sentences in group III, in which <u>cəlna</u>, when modified for direction, produces grammatical sentences if its subject is + [animate]. The set of sentences in group IV show that it can take a directional adverbial if the tense is future but not when it is past.

Thus the grammar would have to specify the following conditions on <u>cəlna</u> in order for it to take directional adverbials:

　(1) Subject must be [+ animate]

　(2) Tense or mood should be one of the following:

　　　i.　present progressive

　　ii.　simple future

　　iii.　imperative

　　iv.　subjunctive

Moreover, the grammar would label the following sentences as ambiguous in the sense that it would fail to specify whether or not the speaker/hearer is involved in the movement of cǝlna:

(17) meena cǝl rǝhĩ hɛ.
     Meena is moving.

(18) hǝm cǝl rǝhe hɛ̃.
     We   are moving.

(19) meena cǝlegĩ.
     Meena will move.

(20) hǝm cǝlẽge.
     We will move.

However, native speakers clearly interpret (17) and (19) as speaker-inclusive while (18) and (20) are interpreted as hearer-inclusive. This intuition of the native speakers is clearly captured in the following sentences:

*(21) meena cǝl rǝhĩ hɛ, pǝr mɛ̃ nǝhĩ̃ ja rǝha.
      Meena move prog. is, but I not go prog.
      Meena is going but I am not going.

*(22) hǝm cǝl rǝhe hɛ̃, pǝr tum nǝhĩ̃ ja rǝhe.
      we move prog. are, but you not go prog.
      We are going, but you are not going.

*(23) meena cǝlegĩ   pǝr hǝm nǝhĩ̃ jayẽge.
      Meena go will, but we not   go will.
      Meena will go but we will not go.

*(24) hǝm cǝlẽge pǝr tum nǝhĩ̃ jaoge.
      we   go will but you not go will.
      We will go but you will not go.

(21) and (23) are ungrammatical because the speaker's movement is negated in the conjoined sentence and (22) and (24) are ungrammatical because the hearer's movement is negated in the conjoined sentence. Nevertheless, the grammar would fail to explain the ungrammaticality of the sentences (21)-(24).

Moreover, the following sentences indicate that cǝlna is not always inclusive of the speaker's/hearer's movement:

(25) S̲h̲a̲m̲ c̲ə̲l̲t̲a̲ h̲ɛ̲ p̲ə̲r̲ m̲ɛ̲ n̲ə̲h̲ĩ̲.
   Sham move is but I not.
   Sham moves but I don't.

(26) M̲e̲e̲n̲a̲ g̲h̲a̲s̲ p̲ə̲r̲ c̲ə̲l̲t̲ĩ̲ h̲ɛ̲ p̲ə̲r̲ m̲ɛ̲ b̲ə̲ʈ̲h̲a̲ h̲ũ̲.
   Meena grass on move is but I seated am.
   Meena moves on the grass but I am sitting.

where sentences are grammatical even when the speaker's movement is negated in the conjoined sentence.

All these facts can be accounted for if we assume that c̲ə̲l̲n̲a̲ is a non-nuclear verb, which may be classified into the following: $c̲ə̲l̲n̲a̲_1$ involves physical movement as in 'to walk' and can be modified for place but not direction or goal, while $c̲ə̲l̲n̲a̲_2$ involves j̲a̲n̲a̲ 'to go' -- like movement, which can be modified for direction as well. The choice of either of these depends on the inclusion or the exclusion of the speaker's/hearer's movement.[5] If it is exclusive of the speaker/hearer (when the speaker/hearer is not the subject) it has the underlying representation of 'to walk' and if it is inclusive of the speaker's/hearer's movement, it has the underlying representation of j̲a̲n̲a̲ 'to go'. Leech (1969:190) points out that "the meanings of c̲o̲m̲e̲ and g̲o̲ resemble those of w̲a̲l̲k̲ and r̲u̲n̲ etc. in implying movement, but they do have the additional force of movement in respect of a goal or destination."

This hypothesis would explain the data in simple and systematic fashion. Recall the sets of sentences in groups I and II. The grammaticality of the sentences in group I and the ungrammaticality of the sentences in group II can be accounted for if we show that c̲ə̲l̲n̲a̲ is exclusive of the speaker[6] in those cases, and that is why it ought to have an underlying representation like 'to walk' which can be marked for place but not for goal.

Group III consists of sentences (5), (6), (7), (8), in which c̲ə̲l̲n̲a̲ is marked for place as well as goal. The test of inclusiveness shows that c̲ə̲l̲n̲a̲ is inclusive of the speaker/hearer [+ GO] and thus has 'go' -- like semantic representation, which allows it to be marked for place and goal.[7] (9) and (10) are exclusive of the speaker/hearer [+ GO] and that is why c̲ə̲l̲n̲a̲ behaves like 'to walk', thus it cannot be marked for goal, but can be marked for place.[8]

In group IV, (11) and (12) are inclusive while (13) and (14)
are exclusive of the speaker/hearer [+ GO].[9] This accounts for the
grammaticality/ungrammaticality of the sentences involved.

Thus we can draw the following conclusions: First it is necessary
to subcategorize cəlna into two verbs. Second, when unmarked for goal
or place, if it is inclusive of speaker/hearer [+ GO], it behaves like jana
'to go' and thus is allowed to be marked for place or goal.[10] However,
when unmarked, if it is exclusive of the speaker/hearer [+ GO] it has
'walk'-like semantic representation, so it cannot be marked for goal.
Third, the investigation of the data reveals that cəlna is inclusive of
the speaker/hearer [+ GO] in certain tesnes and moods, such as:

    (1) present progressive (group III)

    (2) future (group IV)

    (3) imperative (group V)

    (4) subjunctive (group V)

and not in others like simple present (set I) or simple past (set IV,
(14)). Thus we are prompted to think that tense also plays an important
role in the choice of its semantic properties.

However we find the following kind of sentences where cəlna is
inclusive of the speaker/hearer [+ GO] in simple past tense also.[11]

    (27) mɛ̃   ne   kəha 'vəh cəl rəhĩ hɛ.'
        I   agent marker said 'she move prog. is.'
        I said she is going.

    (28) mɛ̃   ne   kəha, 'mɛ̃ cəl rəha hũ.'
        I   agent marker   said, 'I move prog. am.'
        I said I am going.

Note that these sentences are inclusive of the speaker/hearer
[+ GO] because the negation of the speaker's/hearer's movement results
in the ungrammatical sentences:

    *(29) mɛ̃   ne   kəha, 'vəh cəl rəhĩ hɛ, per mɛ̃ nəhĩ ja rəha.'
        I   agent marker said, 'she move prog. is but I not   go prog.'
        I said she is going but I am not.

    *(30) mɛ̃   ne   kəha, 'mɛ̃ cəl rəha hũ, per tum nəhĩ ja rəhe.'
        I   agent marker said, 'I move prog. am, but you not go prog.'
        I said, 'I am going but you are not.'

While (14) shows that cǝlna is not inclusive of the speaker [+ GO],
the evidence above shows that tense is not a crucial factor in deciding
what kind of semantic interpretation it has in a given situation.

In the framework of our analysis we can explain this phenomenon
in a straightforward fashion.

1. A sentence S should be tested for inclusiveness/exclusiveness
of speaker/hearer [+ GO].

2. S should be unmarked for place, goal, etc.

3. If it is inclusive/exclusive [+ GO] it will not lose this
property, even when it is embedded.

This could be further tested in the following sentence.

(31) mɛ̃   ne   kəha, 'vəh $\frac{\text{ghas per}}{\text{Chicago}}$ cǝl rǝhĩ hɛ.

    I   agent marker said, 'she $\frac{\text{on the grass}}{\text{Chicago}}$ move prog. is.

    I said, 'She is   walking on the grass.'
                      going to Chicago.'

which clearly discloses jana-like behavior of cǝlna, which is marked for
both place and goal. Consider the following sentence:

(32) mɛ̃   ne   kəha, 'vəh cǝltĩ hɛ.

    I   agent marker said, 'she move is.'

    I said she walks.

in which 'vəh cǝltĩ hɛ.' 'she walks' is exclusive of the speaker and
remains so when embedded under a verb in the past tense. This is
strengthened by the following sentences which show that in cases like
this cǝlna, like walk, can only be marked for place and not for the goal.

(33) mɛ̃ ne   kəha, 'vəh $\frac{\text{ghas per}}{\text{*Chicago}}$ cǝltĩ hɛ.

    I said   she moves on the grass.

    *I said she goes to Chicago.

Thus it is necessary to assume that the inclusive/exclusiveness of the
speaker/hearer [+ GO] plays a crucial role in the choice and the
interpretation of cǝlna.

II

In Section I, I established that cəlna does have a jana-like underlying semantic representation. However, there is adequate evidence to prove that cəlna and jana cannot be treated as synonyms, because their behavior differs significantly regarding the inclusiveness/exclusiveness of the speaker/hearer, and so we cannot assign to them the same semantic representation, which according to Fillmore (1962) is crucial for two verbs to be synonyms.

Note the following sentences:

Type I

*(34) vəh cəl rəhî hɛ pər mɛ nəhî̃ ja rəha.
she move prog. is but I not go prog.
She is going but I am not going.

(35) vəh ja rəhî hɛ pər mɛ̃ nəhî̃ ja rəha.
she go prog. is but I not go prog.
She is going but I am not.

Type II

*(36) cəlo mɛ̃ nəhî̃ ja rəha.
move, I not go prog.
Go, I am not going.

(37) jao mɛ̃ nəhî̃ ja rəha.
go I not go prog.
Go, I am not going.

Type III

*(38) (ap) khana khane cəlẽ mɛ̃ nəhî̃ ja rəha.
(you) meal to eat move-subjunctive I not go prog.
You may go to eat (your) meal, I am not going.

(38a) (ap) khana khane jayẽ mɛ̃ nəhî̃ ja rəha.
(you) meal to eat go+subjunctive I not go prog.
You may go to eat your meal, I am not going.

Type IV

*(39) mɛ̃ nəhî̃ ja rəha pərtum cəlo.
I not go prog. but you move
I am not going but you go.

(40) mɛ nəhĩ ja rəha pər tum jao.
I not go prog. but you go.
I am not going but you go.

*(41) mera subəh kĩ garĩ se jana səmbhəv nəhĩ, pər tum cəlo.
my morning of train by going possible not but you move.
It is not possible for me to go by the morning-train but you go.

(42) mera subəh kĩ garĩ se jana səmbhəv nəhĩ pər tum jao.
my morning of train by going possible not but you go.
It is not possible for me to go by the morning train but you go.

*(43) mɛ əpne ghər nəhĩ ja rəha pər tum mere ghər cəlo.
I my house not go prog. but you my house move.
I am not going to my house but you go to my house.

(44) mɛ əpne ghər nəhĩ ja rəha pər tum mere ghər jao.
I my house not go prog. but you my house go.
I am not going to my house but you go to my house.

*(45) mɛ kalij nəhĩ ja rəha pər meena kalij cəl rəhĩ hɛ.
I college not go prog. but Meena college move prog. is.
I am not going to college but Meena is going to college.

(46) mɛ kalij nəhĩ ja rəha pər meena kalij ja rəhĩ hɛ.
I college not go prog. but Meena college go prog. is.
I am not going to college but Meena is going to college.

Type V

*(47) šam cəl rəha hɛ kyõki həm nəhĩ ja rəhe.
Sham move prog. is because we not go prog.
Sham is going because we are not going.

(48) šam ja rəha hɛ kyõki həm nəhĩ ja rəhe.
Sham go prog. is because we not go prog.
Sham is going because we are not going.

*(49) prəkash mūvĩ dekhne cəl rəha hɛ kyõki həm nəhĩ ja rəhe.
Prakash movie to see move prog. is because we not go prog.
Prakash is going to see the movie because we are not going.

(50) prəkash movĩ dekhne ja rəha hɛ kyõki həm nəhĩ ja rəhe.
    Prakash movie to see go prog. is because we not go prog.
    Prakash is going to see the movie because we are not going.

Type VI

*(51) sheela mere ghər cəl rəhĩ hɛ aur mɛ əpne ghər ja rəha hũ.
    Sheela my house move prog. is and I my house go prog. am.
    Sheela is going to my house and I am going to my house.

(52) sheela mere ghər ja rəhĩ hɛ aur mɛ bhĩ əpne ghər ja rəha hũ.
    Sheela my house go prog. is and I also my house go prog. am.
    Sheela is going to my house and I am also going to my house.

*(53) shərəd kəpṛe khərĩdne cəl rəha hɛ aur mɛ kəpṛe khərĩdne
    Sharad clothes to buy move prog. is and I clothes to buy
    Sharad is going to buy clothes and I am going

      ja rəha hũ.
      go prog. am.
      to buy clothes.

(54) shərəd kəpṛe khərĩdne ja rəha hɛ aur mɛ bhĩ kəpṛe khərĩdne
    Sharad clothes to buy go prog. is and I also clothes to buy
    Sharad is going to buy clothes and I am going to buy clothes.

      ja rəha hũ.
      go prog. am.

Type VII

*(55) sheela bhĩ cəl rəhĩ hɛ pər mɛ nəhĩ ja rəha.
    Sheela also move prog. is but I not go prog.
    Sheela also is going but I am not going.

(56) sheela bhĩ ja rəhĩ hɛ pər mɛ nəhĩ ja rəha.
    Sheela also go prog. is but I not go prog.
    Sheela also is going but I am not going.

*(57) sheela aur ram (bhĩ) cəl rəhe hɛ, pər mɛ nəhĩ ja rəha.
    Sheela and Ram (also) move prog. are, but I not go prog.
    Sheela and Ram also are going but I am not going.

(58) sheela <u>aur</u> <u>ram</u> (bhĩ) <u>ja</u> <u>rəhe</u> hε, <u>pər</u> <u>mε</u> nəhĩ <u>ja</u> <u>rəha</u>.
Sheela and Ram (also) go prog. are, but I not go prog.
Sheela and Ram also are going but I am not going.

Type VIII

?*(59) sheela <u>ram</u> <u>ke</u> <u>sath</u> <u>cəl</u> <u>rəhĩ</u> hε, <u>pər</u> <u>mε</u> nəhĩ <u>ja</u> <u>rəha</u>.
Sheela Ram with move prog. is, but I not go prog.
Sheela is going with Ram but I am not going

(60) sheela <u>ram</u> <u>ke</u> <u>sath</u> <u>ja</u> <u>rəhĩ</u> hε, <u>pər</u> <u>mε</u> nəhĩ <u>ja</u> <u>rəha</u>.
Sheela Ram with go prog. is, but I not go prog.
Sheela is going with Ram but I am not going.

?*(61) <u>bəcca</u> <u>mã</u> <u>ke</u> <u>sath</u> 'station' <u>cəl</u> <u>rəha</u> hε, <u>pər</u> <u>mε</u> nəhĩ <u>ja</u> <u>rəha</u>.
child mother with station move prog. is but I not go prog.
The child is going to the station with (his) mother but I am not
    going.

(62) <u>bəcca</u> <u>mã</u> <u>ke</u> <u>sath</u> 'station' <u>ja</u> <u>rəha</u> hε, <u>pər</u> <u>mε</u> nəhĩ <u>ja</u> <u>rəha</u>.
child mother with station go prog. is but I not go prog.
The child is going to the station with (his) mother but I am not
    going.

This data clearly shows that <u>cəlna</u> behaves differently from <u>jana</u> in
all eight types of sentences. If <u>cəlna</u> is treated as a synonym of <u>jana</u>,
all these cases will have to be labelled as exceptions. Moreover, such
an assumption would fail to capture the systematic nature of the differ-
ences, namely, in the data given above, sentences with <u>cəlna</u> (in the
main sentence) are ungrammatical if the speaker's movement is negated in
the following sentence or if it is stated in the following sentence.
Note that the subject of the above mentioned types of sentences (I-VIII)
is none other than the speaker. However if we substitute <u>mε̃</u> 'I' or
<u>həm</u> 'we' for the subject and <u>tum</u> 'you' for the subject of the conjoined
sentences, the result will not be different with regard to the grammati-
cality/ungrammaticality of the sentences and <u>cəlna</u> will still behave
differently in exactly the same way.

However, if we posit <u>cəlna</u> as inclusive of the speaker/hearer
[+ GO] and treat it as a part of its semantic representation, we can

explain the ungrammaticality of these sentences in terms of the negation
of what is assumed to be part of its underlying semantic representation
(types I-V), or in terms of tautologous assertion of what is already
expressed (type VI).

This hypothesis can be well tested by the negation test, referred
to by Morgan (1973:27). For a hypothesis that some presupposition P is
a part of $C(S_i)$ (complete logic of the sentence) for some sentence S_i
the hypothesis is tested by constructing a sentence S_i' of the form S_i
and neg(P) or S_i but neg(P), where neg(P) is the natural language
negation of the presupposition. If S_i evokes a judgment of contradiction,
the hypothesis is supported. Sentences of type II and VIII clearly
support our hypothesis, because in the cases, negation of speaker/hearer
[+ GO] results in an ungrammatical sentence.

Note the following sentences again:

*(63) S_i [vəh Chicago dekhne cəl rəhɪ hɛ]S_i aur $_p$[mɛ nəhĩ ja rəha.]$_p$
    She is going to see Chicago and I am not going.

*(64) S_i[vəh Chicago dekhne cəl rəhɪ hɛ]S_i pər $_p$[mɛ nəhĩ ja rəha.]$_p$
    She is going to see Chicago but I am not going.

While discussing the redundant element, 'four sided' in the sentence,
'This figure is a four-sided square' Morgan (1973:21) defines redundant
element (single word or an entire sentence) as having no properties that
are not expressed by the well-formed sentence created by the removal of
that element. Leech (1970:39) proposes a test for pointing out tautologies.
'The assertion a ⟨θ.b.r.c.⟩ s.d is a tautology if the assertion a.r.c.
implies the assertion a.s.d. In the set of sentences of the type VII,
bhɪ 'also' implies that someone else is involved in the action and if we
negate the speaker's movement, (55) and (57) are ungrammatical, while (56)
and (58), with jana as their verb, are not. It supports our hypothesis
that cəlna is inclusive of the speaker while jana is not.

The sentences with jana in VIII are immediately acceptable to native
speakers, but they are not as good with cəlna. In the light of this
discussion, if we observe the sentences of the type VI, we find that
(59) and (61) are illformed because they contain a redundant element,
namely the conjoined sentence, which expresses precisely what is already

indicated by the preceding sentence. Since I/you [+ GO] is included
in the interpretation of cəlna, the conjoined sentence is redundant.
Since the sentences with jana as the main verb of the main sentence are
not illformed, we can assume that jana is not inclusive of the speaker/
hearer [+ GO] and thus is different from cəlna.

Morgan (1973:28) points out that some sentences are reported to be
bizzare because they seem to contradict the logical property of the
sentence. Note the following sentences:

?*(65) A[Sheela əpne ghər cəl rəhī hɛ]A

A[Sheela her house move prog. is]A

A[Sheela is going to her house]A

B[isliye mɛ usse ab nəhī̃ mil səkta]B

B[that's why I with her now not meet can]B

B[that is why I cannot meet her now]B

?*(66) A[həmara sara pəriwar cəl rəha hɛ]A

A[our all family move prog. is]A

A[Our whole family is going]A

B[pər mɛ̃ nəhī̃ ja rəha]B

B[but I not go prog.]B

B[but I am not going]B

?*(67) A[aj ap Chicago cəl rəhe hɛ̃]A

A[today you Chicago move prog. are]A

A[Today you are going to Chicago]A

B[isliye mɛ̃ apse batẽ nəhī̃ kər səkũga]B

B[that's why I with you chitchat not do can]B

B[that is why I will not be able to chitchat with you]B

In (65), (66), and (67) the conjoined sentence B contradicts the property
of cəlna (namely the inclusiveness of the speaker [+ GO].

Another dimension in which cəlna differs from jana is that cəlna
assumes not only speaker/hearer [+ GO] but also the direction of the
movement of its surface subject. For example:

*(68) vəh əpne ghər   cəl rəhĪ hɛ aur mɛ əpne ghər ja rəha hū̃.
she her house   move prog. is and I   my house go prog. am.
She is going to her house and I am going to my house.

*(69) vəh hoṭəl cəl rəha hɛ aur mɛ kalij ja rəha hū̃.
he hotel move prog. is and I college go prog. am.
He is going to the hotel and I am going to college.

*(70) mohən dukan cəl rəha hɛ aur mɛ uske ghər ja   rəha hū̃.
Mohan shop move prog. is and I his house move prog. am.
Mohan is going to the shop and I am going to his house.

In (68), (69), and (70), the conjoined sentences indicate that the
speaker's movement has a direction different from that of the subject
of cəlna in the preceding sentence. However there is no such constraint
on jana. Thus the same sentences with jana are well-formed. For example:

(71) vəh əpne ghər ja rəha ɛ̃ aur mɛ əpne ghər ja rəha hū̃.
He is going to his house and I am going to my house.

(72) vəh hoṭəl ja rəha hɛ aur mɛ kalij ja rəha hū̃.
He is going to the hotel and I am going to the college.

(73) mohən dukan ja rəha hɛ aur mɛ̃ uske ghər ja rəha hū̃.
Mohan is going to the shop and I am going to his house.

Note the following sentences:

(74) cəlo rastemɛ̃ batɛ̃ kərẽge.
move road in talk will do.
(let us) go, we will talk on (our) way.

*(75) jao rastemɛ̃ batɛ̃ kərẽge.
Go, we will talk on (our) way.

(76) vəh bazar cəl. rəha hɛ to   raste mɛ̃ usko
he bazaar move prog. is that's why road in to him
He is going to the bazaar (with me) so on our way I

    əpna ghər· bhĪ dikha dū̃ga.
    my house also will show.
    will show him my house also.

*(77) veh bazar ja rəha hɛ to raste mɛ̃ usko əpna ghər bhī dikha dūga.
He is going to the bazaar so on the way I will show him my
house also.

(78) meena Chicago cəl rəhī hɛ isliye səfər accha rəhega.
Meena Chicago move prog. is so trip fine will be
Meena is going to Chicago (with me) so the trip will be fine.

*(79) meena Chicago ja rəhī hɛ isliye səfər accha rəhega.
Meena is going to Chicago so the trip will be fine.

(80) əgər tum mūvī dekhne cəl rəhe ho to kəhī̃ rukkər cay pī lɛ̃ge.
If you movie to see move prog. are then somewhere having tea will dri
stopped

If you are going to see the movie (with me) we will stop somewhere
and have tea.

(81) meena əgər cəl rəhī hɛ, to gəṛī mɛ̃ həm tīn hõge.
Meena if move prog. is then car in we three will be.
If Meena is going (with us) we will be three in the car.

*(82) meena əgər ja rəhī hɛ to gəṛī mɛ̃ həm tīn hõge.
If Meena is going we will be three in the car.

These sentences indicate that the movement of the speaker/hearer is
with that of the surface subject of cəlna. Thus cəlna can be interpreted
as subject + speaker/hearer [+ GO TOGATHER]. In (74) - (78) it is
somehow assumed that the speaker is going to be with the subject of
cəlna up to the destination of the movement.

Thus cəlna is closer to the English verb 'to accompany' which clearly
denotes the movement 'go/come with (someone)'. However jana is totally
exclusive of such denotation. Thus it is not plausible to treat cəlna
as a synonym of jana.

III·

Keenan (1971:45) points out that a sentence S, logically presupposes
a sentence S' just in case S logically implies S' and the negation of S
also logically implies S'. Let us consider the following sentence:

(83) meena cəl rəhī hɛ. (S)
     Meena is going.

In this sentence the following sentence is presupposed: mɛ ja rəha hū̃
(S') 'I am going' because in the sentence meena nəhī̃ cəl rəhī (~S)
'Meena is not going', (S') mɛ ja rəha hū̃ 'I am going' is presupposed,
because we find sentences of the following type: meena nəhī̃ cəl rəhī
hɛ pər mɛ ja rəha hū̃. 'Meena is not going but I am going'. It becomes
very clear in the following sentences, where negation of cəlna is followed
by the negation of the speaker's/hearer's movement:

(84) meena ghər nəhī̃ cəl rəhī hɛ.
     Meena house not move prog. is.
     Meena is not going home.

     *pər
     *aur   mɛ nəhī̃ ja rəha hū̃.
     ?isliye

     *but
     *and   I not go prog. am.
     ?and so

     *but
     *and   I am not going.
     ?and so

(85) həm nəhī̃ cəl rəhe hɛ̃
     we not move prog. are
     We are not going

     *pər
     *aur   tum nəhī̃ ja rəhe.
     ?isliye

     *but
     *and   you not go prog.
     ?so

     *but
     *and   you are not going.
     ?so

The ungrammaticality of these sentences indicates that the negation of
(S) does not negate (S') (logically implied sentence). It is in this
respect different from logical implication because, if (S) logically
implies (S'), the negation of (S) automatically negates (S'); i.e. if
the (S) 'men are mortal' logically implies that the (S') 'John is mortal',

then the negation of (S), (S) 'meh are not mortal' would negate John's
mortality (S'). This evidence motivates the hypothesis that the speaker's/
hearer's movement cannot be treated as logically implied in the semantic
interpretation of cəlna.

Now we will consider the plausibility of treating it as an entail-
ment. Fillmore (1967) proposes that 'the entailment is unchanged even
when the verb itself is negated or questioned or the like'. In the light
of this definition of entailment, it appears that speaker/hearer [+ GO]
is an entailment of cəlna. Note the following sentences:

(86) vəh nəhĩ cəl rəhĩ hɛ. (negation of cəlna)
    She is not going.

(87) kya vəh cəl rəhĩ hɛ? (question)
    Is she going?

Both (86) and (87) entail mɛ̃ ja rəha hũ 'I am going'. Negation of it
produces an ungrammatical sentence.

*(88) vəh nəhĩ cəl rəhĩ aur mɛ̃ nəhĩ ja rəha.
    She is not going and I am not going.

*(89) kya vəh cəl rəhĩ hɛ? mɛ̃ nəhĩ ja rəha.
    Is she going? I am not going.

Apparently it seems to behave like an entailment. Morgan (1973:88:89)
provides evidence to show that entailment and presupposition are
psychologically quite different, and that it is therefore inappropriate
to treat one as a subset of the other. Presupposition does not seem to
follow from the sentence which presupposes it in the same way as entail-
ment does from the sentence which entails it. Note the following sentences
stated by Morgan (1973:88):

$_A$[John has five children]$_A$ $_B$[so obviously he has more than one]$_B$

B seems to follow from A and Morgan labels it as an entailment of A.
Note the following sentences:

*(90) $_A$[vəh cəl rəhĩ hɛ]$_A$
        she go prog. is
        She is going.

~~B~~[isliye   mɛ̃ ja rəha hũ ye   zahir hɛ.]~~B~~

    that's why I go prog. am this obvious is

    so it is obvious that I am going.

*(91) ~~A~~[vəh nəhĩ cəl rəhĩ]~~A~~

    she not go prog.

    She is not going.

~~B~~[isliye   mɛ̃ ja rəha hũ ye   zahir hɛ.]~~B~~

    that's why I go prog. is this obvious is

    so it is obvious that I am going.

B does not follow from A in the same way as an entailment does.

Thus it is clear that this property of cəlna (namely inclusiveness) of the speaker/hearer [+ GO]) can only be explained in terms of presupposition as opposed to logical implication or entailment.

NOTES

*I am grateful to Professors B. Kachru and Y. Kachru who read an earlier version of this paper. My thanks are also due to Tej Bhatia and A.H. Siddiqui, who have helped me sharpen my intuitions about Hindi.

[1](a) Hindī vyākaraṇa: Kamtaprasad Guru: 1937.
   (b) Hindī Šabdānušāsana: K. Vajpeyi: 1967.
   (c) Hindstīna Hindi Language Course: V. Porizka: 1963.

[2]Sinha (1972) discussed the following example:

həm   šammɛ̃   wəhã jayẽge.
We   evening in there go will.
We will go there in the evening.

This sentence is ambiguous with regard to the hearer's movement. However, if we replace jana by cəlna, it does not remain ambiguous, i.e.

həm   šammɛ̃   wəhã cəlẽge.
we   evening in   there go will.
We will go there in the evening.

This sentence is inclusive of the hearer's movement.

[3]Nuclear verb is a term used by U. Weinreich in his paper 'Explorations in Semantic Theory' published in Semantics, Cambridge University Press, 1971.

[4]In this case I do not exclude other tenses like future progressive, etc., in which cəlna is exclusive of speaker/hearer [+ GO]. I have

mentioned past progressive and simple past in order to differentiate them from present progressive and simple future. The criterion of inclusiveness is discussed in detail in section II.

[5]At this point, whether or not cəlna is inclusive of the speaker/ hearer [+ GO] is judged by negating the movement in the conjoined sentence. If the result is ungrammatical, it is an evidence for the inclusiveness of cəlna.

[6]meena cəltī hɛ, pər mɛ̃ nəhī̃.
Meena move is but I am not
Meena is moving but I am not.

This clearly shows that cəlna is not inclusive of the speaker's move- ment and thus is like walk, so it can be marked for place but not for goal.

[7]*meena cəl rəhî hɛ pər mɛ̃ nəhī̃ ja rəha.
Meena move prog. is but I not go prog.
Meena is moving (going) but I am not.

Ungrammaticality of this sentence shows that it is inclusive of the speaker's movement.

[8]kar cəl rəhî hɛ pər mɛ̃ nəhī̃.
car move prog. is but I not.
The car is moving but I am not.

The grammaticality of the neg. sentence shows that the speaker's movement is not included in cəlna.

[9](i) Inclusive of the speaker [+ GO]: Even when the subject of cəlna is other than the speaker, the speaker's movement is included in it.
(ii) Inclusive of the hearer [+ GO]: When the subject of cəlna is the speaker, the hearer's movement is also included in it.

[10]*meena cəl rəhī hɛ, pər mɛ̃ nəhī̃ ja rəha.
Meena go prog. aux, but I not go prog.
Meena is going but I am not.

The above sentence shows that cəlna is inclusive of the speaker. Thus we get the following sentences:

(i) meena Chicago cəl rəhî hɛ.
Meena Chicago go prog. is
Meena is going to Chicago.

(ii) meena ghas pər cəl rəhī hɛ.
Meena grass on move prog. is.
Meena is walking on the grass.

[11]I am thankful to Tej K. Bhatia for pointing out these sentences to me.

BIBLIOGRAPHY

Chandola, A. 1970. A Systematic Translation of Hindi-Urdu into English. University of Arizona Press, Tucson.

Fillmore, C.J. Entailment rules in a semantic theory. Project on Linguistic Analysis, Report No. 10. Ohio State University.

Guru, K. Hindī Vyākaraṇa. Nāgrī Prachārinī Sabhā, Kashī.

Keenan, E.L. 1971. Two kinds of presupposition in natural language. Studies in Linguistic Semantics, C.J. Fillmore and D.T. Langendoen eds.

Leech, G.N. 1969. Towards a Semantic Description of English. Indiana University Press, Bloomington and London.

Morgan, J.L. 1973. Presupposition and the Representation of Meaning Prolegomena. Ph.D. dissertation, University of Chicago.

Perlmutter, D. 1970. Two verbs begin. Readings in English Transformational Grammar, Jacobs and Rosenbaum eds.

Poříza, V. 1963. Hindština Hindī Language Course. Prague.

Postal, P. 1971. On the surface verb remind. Studies in Linguistic Semantics.

Vajpeyi, K. 1967. Hindi Šabdānuśāsana. Nāgrī Pracarinī Sabhā Kashī.

Weinreich, U. 1971. Explorations in semantic theory. Semantics, Steinberg and Jakobovits eds., Cambridge University Press.

WHAT THEY SAY ABOUT SAY

Elizabeth Riddle

In "Global Rules" G. Lakoff noticed that the verb say may take either a for-to or a that complementizer, as exemplified in the following sentences:

1. a) Sam said that John was tall.
   b) *Sam said for John to be tall.
   c) *Sam said John to be tall.
   d) *John was said to be tall by Sam.
   e) John was said to be tall.

He claimed that if say takes a for-to complementizer, it must undergo the rules of subject raising, passive, and agent deletion, and that therefore verbs like say require global conditions on their occurrence. The optionality of certain rules cannot be ascertained until that point in the derivation where the complementizer is chosen. Baker and Brame reject this analysis in their reply to Lakoff, "Global Rules: A Rejoinder." They propose an alternative analysis which they claim remains within the bounds of the Aspects theory, whether complementizers are chosen in the base or inserted transformationally.

Baker and Brame break up say into two separate lexical items, say_1 and say_2, as shown in 2 and 3:

say_1: 2. Sam said that John was tall.

say_2: 3. a) It is said that John is tall.
          b) John was said to be tall.

They claim that say_2 occurs only in agentless passives, whether it takes the infinitival complementizer, as in 3(b), or the that complementizer, as in 4:

4. a) *It's said by Bill that John is tall.
   b) It is said that John is tall.

Moreover, extraposition is obligatory for say_2:

5. a) *That John is tall is said.
   b) It is said that John is tall.

They compare say_2 with rumor and claim that their syntactic behavior is similar:

6. a) *John rumors that Bill is tall.

    b) *John rumors Bill to be tall.

    c) *Bill is rumored by John to be tall.

    d) Bill is rumored to be tall.

    e) It is rumored that Bill is tall.

    f) *It is rumored by John that Bill is tall.

    g) *That Bill is tall is rumored.

Their analysis of say_2 holds that no significant differ-
ence is tied to the choice of complementizer, and that say_2
may take either that or for-to. In either case, it appears
only in agentless passives.

Baker and Brame go on to draw a comparison between
be said and be rumored with seem and appear, and they suggest,
following Emonds' analysis for the latter pair, that be said
is generated as a passive by the rules of the base and that
its subject node is empty in deep structure. An it is sup-
plied by the same rule that gives superficial it to weather
verbs such as rain and snow. If the subject node of be said
is empty in deep structure, there could have been no prior
application of passive. They offer the following derivation
as typical:

7. Empty-Np be said such feats to be most difficult
    Such feats are said to be most difficult.

After subject raising has applied, pseudo-clefts and ques-
tions can be formed:

8. a) What feats are said to be most difficult?

    b) What is said to be most difficult is the
        full gainer with half twist.

They claim that say_2 has a more narrowly restricted
semantic range than say_1 and that say_1 only can be used in
reporting a single speech act. For example, consider 9 and
10:

9. a) All of a sudden, someone said that George
        was turning blue.

b) *All of a sudden, George was said to be turning blue.

10. a) Someone said in a loud voice that the carrots were overcooked.

b) *It was said in a loud voice that the carrots were overcooked.

The passive sentences are ungrammatical when modified by an adverb. They claim that this follows from the fact that these occurrences of say do not report a single speech act.

What I would like to show in this paper is that both Lakoff's and Baker and Brame's analyses are descriptively and explanatorily inadequate. I will attempt to show that there is only one verb say and that it is generated as an active by the rules of the base. Say's behavior can be accounted for pragmatically, and the crucial factor is whether its deep structure refers to a specific person or persons, or to an indefinite group of people. I will assume that complementizer choice is in fact significant. (see Borkin, 1973, Kiparsky and Kiparsky, 1971, Riddle, 1975.)

First, I will discuss Lakoff's analysis. Lakoff claims that when say takes a for-to complementizer, it must undergo the rules of passive, subject raising, and agent deletion. But consider the following sentences:

11. a) My mother said for me to come home.

b) *My mother said for me to be tall.

12. a) The judge said for me to tell the truth.

b) *The judge said for me to be innocent.

13. a) The Bible says for you to obey the Ten Commandments.

b) *The Bible says for you to have blue eyes.

The (a) examples above all contain a surface for-to comolementizer with no application of the relevant rules, yet they are grammatical. The (b) sentences are ungrammatical not because of failure to undergo these rules, but because there is a stative verb in the complement. One possible problem

with Lakoff's analysis is that he assumes that the complemen-
tizers to and for-to both come from a deep structure for-to,
and that in some cases the for is deleted on the surface.
At the moment, I can't give an argument that this is not the
case, but I'd like to point out that there is no real evidence
that it is, either. Archaisms or dialectal variations such as
"I want for you to come home" cannot be construed as evidence
that there is an underlying for in all infinitival construc-
tions for all speakers of English. The greater generality
this analysis affords is gained only at the expense of a
more abstract grammar. Note that the only places where sur-
face for-to's are found is in emotive predicates and with
the verb say. e.g.:

14. a) It's crazy for you to do that

       b) She said for me to do my homework.

Attempting to partially explain this by saying that say for
is an idiom or a different lexical item from say fail because
they can undergo conjunction reduction. Green (1969)
showed that this as a test for the same lexical item. e.g.:

15. What did your mother say?

       She said that I was late and for me to come home.

Now consider Lakoff's examples given on page 1 as 1(c)
and (d) and repeated here as 16 and 17:

16. *Sam said John to be tall.

17. *John was said to be tall by Sam.

16 is ungrammatical because the wrong complementizer was
chosen, part of which was deleted. A sentence like 16 needs
a that complementizer at some point in the derivation and a
tensed verb. Compare 18 and 19:

18. *Sam said John to be a bastard.

19. Sam said (that) John was a bastard.

The choice of complementizer is significant, since for-to
here implies some sort of control on the part of the lower
subject over the action in the complement. That is used to
simply state a fact in the complement.

17 is ungrammatical because of the presence of the phrase
by Sam. Consider for a moment some pairs of sentences differ-
ing only in what shows up in the by-phrase.

 20. John was said to be a bastard by everyone who knew him.

 21. a) *John was thought to be a bastard by Sam.

   b) John was thought to be a bastard by anyone
    who ever met him.

 22. a) *John was considered to be a bastard by Sam.

   b) John was considered to be a bastard by every-
    one who ever crossed his path.

   Notice first of all that the grammaticality of 20 is a
counterexample to Baker and Brame's claim that say$_2$ appears
only in agentless passives, with an empty subject node in
deep structure. Also, it appears that sentences of this type
are more acceptable when the agent refers to a person or per-
sons in a non-specific way than when a particular person is
named. There is a conflict of focus (using this term inform-
ally) in the raised sentences where a particular person is
named as the agent. What is, one of the pragmatic effects of
raising is to put the raised subject into a position of em-
phasis in the sentence and de-emphasize the old subject. The
focus of 21 (a), for example, is John's bastardliness, not
that it was Sam who thought he was a bastard. The retention
of Sam in this sentence, even though only in a by-phrase,
makes it seem like Sam has not been sufficiently de-empha-
sized.

   One other possible explanation is that the length of
the NP following by makes a difference. However, this is
not the case, as 23 is just as odd as 21 (a):

  23. *John was thought to be a bastard by Sam, who is that
    tailor from Hoboken.

   Turning to Baker and Brame's proposal, there is a
striking counterexample to their claim that say$_2$ is generated
as a passive by the rules of the base and that there is an
empty subject node in deep structure. Consider 24:

24: They $\left\{\begin{matrix} \text{said} \\ \text{say} \end{matrix}\right\}$ that Kissinger is quite a playboy.

They does not refer to a specific group of people here.
This occurrence of say is synonymous with those of 25 and 26:

    25. It's said that Kissinger is quite a playboy.

    26. Kissinger is said to be quite a playboy.

We can not use conjunction reduction here as a test for same-
ness of lexical item because say and said, and be said differ
morphologically. However, none of the verbs in 24 to 26 refer
to a single speech act, as shown by their inability to be mod-
ified by an adverb such as in (a) shrill voices e.g.:

    27. *They said in shrill voices that Kissinger is quite
        a playboy. (they doesn't refer to a specific group)

    28. *It's said in a shrill voice that Kissinger is quite
        a playboy.

    29. *Kissinger is said in a shrill voice to be quite
        a playboy.

Since Baker and Brame point to speech act reference as one of
the distinguishing characteristics between the two verbs say,
they would have to admit that say in 24 is the same say as in
25 and 26, unless they would want to posit three verbs say.
This, of course, would be extremely ad hoc.

    I will call the they in 24 "indefinite they", since it
is not an anaphoric pronoun referring to a specific group of
people. Assuming that the synonymous occurrences of say are
derived from the same deep structure, in order to generate
24 under Baker and Brame's proposal, one would have to
posit an Active transformation which would change be said
to say. They would have to be supplied by the same type of
rule as the one which supplies it in 25. Not only is it
ad hoc to posit an Active transformation based on only one
such example when the already well motivated passive rule
could handle the situation, but it also seems rather com-
plicated to say that in just such examples they is inserted
as the subject rather than it. If one doesn't assume that
the synonymous occurrences of say come from the same deep

structure, one is essentially claiming that there are three
verbs say, two of which differ only in voice.

Another difficulty for Baker and Brame's proposal is the
construction People say. Consider the sentences in 30:

30. a) People say that Kissinger is quite a playboy.
    b) For a while, people were saying that Kissinger
       was quite a playboy.
    c) What do people say about Kissinger?
    d) People will say anything.

People say refers no more to a single speech act than do they
say or it is said, as shown by its inability to be modified
by the manner adverbial in shrill voices. e.g.:

31. *People say   in a shrill voices that Kissinger
           are saying
           said

    is quite a playboy.

Baker and Brame's analysis does not take care of these facts.
The difficulty seems to lie not with the verb say, but with
whatever appears as its subject.

Now let's turn back to the sentences given earlier as 9
and 10 and repeated here as 32 and 33 which Baker and Brame
offered as evidence that there were two verbs say which had
different speech act references.

32. a) All of a sudden, someone said that George
       was turning blue.
    b) *All of a sudden, George was said to be turning
       blue.

33. a) Someone said in a loud voice that the carrots
       were overcooked.
    b) *It was said in a loud voice that the carrots
       were overcooked.

One problem with their analysis is their very assumption
that speech act reference is in fact a distinguishing factor
between lexical items. One could just as well claim that this
difference is due to a property of the subject and not the verb.

That is, the crucial factor is whether it is a particular person or persons, or an indefinite group of people doing the saying, and the verb remains the same in each instance.

Notice that the problem illustrated in 32 to 33 occurs with other raising verbs as well. e.g.:

34. a) All of a sudden someone thought that George was turning blue.

b) *All of a sudden, George was thought to be turning blue.

35. a) All of a sudden, someone proved that George was turning blue.

b) *All of a sudden, George was proved to be turning blue.

36. a) All of a sudden, someone claimed that George was turning blue.

b) *All of a sudden, George was claimed to be turning blue.

Extending Baker and Brame's analysis, one would have to posit two verbs prove, think, and claim also.

The application of raising changes the focus of a sentence. In 32 (a), our attention is drawn to the act of saying and how it was performed. The emphasis in 32 (b), however, is on George's blueness. It is irrelevant how it was talked about or by whom. Therefore, it is inappropriate to include a manner adverbial in 32 (b). Similarly, in 33 (b) passive applies, with the pragmatic effect of changing the emphasis from the act of saying something in a loud voice to the actual condition of the carrots. The new interpretation of 33 (b) renders the manner adverbial irrelevant.

Now consider 37, brought to my attention by Georgia Green (personal communication), and 38:

37. a) {They say / It's said} in Washington that Kissinger is quite a playboy.

  b) In Washington, Kissinger is said to be quite a
      playboy.

38. a) During the Middle Ages, they used to say the
      earth was flat.

  b) During the Middle Ages, it was said that the
      earth was flat.

  c) During the Middle Ages, the earth was said to be
      flat.

37 and 38 show that say can be modified by time and place ad-
verbials in sentences where Baker and Brame would consider
it to be an example to say_2. This is because the information
given in these adverbs is pragmatically relevant to the mean-
ing of the sentence. In other words, the adverbial in a loud
voice in 33 describes the action of a particular person, and
since 33 (b) does not contain a reference to such, the pres-
ence of the adverb is semantically anomalous. On the other
hand, it makes perfectly good sense to limit the possible
world of reference for they say and it's said, etc. in 37
and 38 with reference to place (in Washington) and time
(during the Middle Ages), since the actions predicated by
those constructions can be described by the adverbs in ques-
tion without implying reference to a specific person or per-
sons.

By the same token, Baker and Brame would have to posit
two verbs laugh to account for 39 and 40. (where they=in-
definite they).:

39. a) I laughed at him.

  b) I laughed at him until I was blue in the face.

40. a) They laughed at Edison.

  b) *They laughed at Edison until they were blue
      in the face.

There is one problem concerning adverbs (G. Green, J.
Morgan, personal communication) for which I can offer only
a very tentative explanation. Consider 41 and 42:

41. *Kissinger is said in Washington to be quite a
    playboy.

42. *The earth was said during the Middle Ages to be flat.
Placement of the place and time adverbials immediately after
be said makes the sentences ungrammatical. The closeness of
the verb and adverb in the sentence makes it seem like the ad-
verb is focusing more on the action described by the verb
say than is appropriate in sentences where the emphasis is on
the raised subject. Since adverb position does make a dif-
ference in the meaning of a sentence, as shown in 43 and 44,
this explanation might not be too far off.

43. Kissinger is said to be quite a playboy in Washington.

44. The earth was said to be flat during the Middle Ages.

The last difficulty I will discuss for Baker and Brame's
proposal is illustrated in 45.

45. It's said that Kissinger is quite a playboy, but I
    don't know by who.

Sluicing applies in indirect questions after Wh-Q movement to
delete repeated occurrences of a clause. 45 can only have come
from something like 46:

46. Somebody says that Kissinger is quite a playboy,
    but I don't know wh-someone says that Kissinger
    is quite a playboy.

Even if one posited say as a passive in deep structure in both
clauses, how would one explain the occurrence of who if the
subject node in deep structure were empty? If one tried to
claim that say in the clause with who was say_1 and allowed a
deep structure subject, and that the other say was say_2, gen-
erated as a passive with no deep structure subject, and a
separate lexical entry besides, one would have to allow in-
credibly sloppy identity between the two clauses to delete
the "repeated occurrence." This seems ad hoc to say the least,
and as pointed out before, one of the tests for the same lex-
ical entry is whether or not a second occurrence of a lexical
item can be reduced under identity with the first.

The following sentences might seem to pose a difficulty for the claim that there is only one verb say with respect to the reduction test:

47. *They say Nixon is guilty, but I don't know who.
48. They say Nixon is guilty, but I don't know who exactly $\left\{\begin{array}{l}\text{says so} \\ \text{is saying it}\end{array}\right\}$

However, I think that the difficulty here is that perceptual confusion results from the use of they, which is homophonous with the they which refers to a specific group of people, and whose use in such a sentence would be contradictory. The addition of the extra words in 48 helps to clear this up.

In summary, the point of this paper is that the difference in behavior between the so-called two verbs say actually stems from pragmatic facts about the subject rather than from a property of the verb. There is no more reason to posit two verbs say than two verbs think, claim, or laugh.

One final note of interest is that in languages as diverse as French, Thai, German, Latvian, and Crow, the same form is used for say in both the X says and it is said constructions. e.g.:

49.

French	a)	Jean dit	John says	
	b)	on dit	it is said	
			(lit. one says)	
Thai	a)	Aporn waâ	Aporn says	
	b)	ráw waâ	it is said	
			(lit. they say)	
German	a)	Hans sagt	Hans says	
	b)	Mann sagt	it is said	
			(lit. one says)	
Latvian	a)	Janis saka	John says	
	b)	saka	it is said	
			(lit. say-no subj.)	

Crow   a)   k-ui   say-plural

                  b)   k-ui   it is said

                                     (lit. say-plural)

Notes

I am indebted to Avery Andrews, Aleks Steinbergs, and Aporn Surintramont for the Crow, Latvian, and Thai data, respectively, and to G. Green, J. Morgan, W. Ritchie, G. Sheintuch, and K. Wise for their helpful comments.

References

Baker, C. L. and Michael Brame. 1972. "Global Rules: A Rejoinder," Language, Vol. 48, No. 1.

Binnick, Robert. 1968. "On the Nature of the 'Lexical Item'", CLS 4.

Borkin, A. 1973. "To BE and Not To Be", CLS 9.

Green, Georgia. 1969. "On the Notion 'Related Lexical Entry'", CLS 5.

_____, and Jerry Morgan. 1972. Guide to the Study of Syntax, Department of Linguistics, University of Illinois.

Kiparsky, Paul and Carol Kiparsky. 1971. "Fact", in Semantics An Interdisciplinary Reader in Philosophy, Linguistics and Psychology, eds. D. Steinberg and L Jakobovits. Cambridge: Cambridge University Press.

Lakoff, George. 1970. "Global Rules", Language, Vol. 46, No.3.

_____. 1972. "The Arbitrary Bases of Transformational Grammars", Language Vol. 48, No. 1.

Postal, Paul. 1974. On Raising, Cambridge, Mass.: MIT Press.

Riddle, Elizabeth. 1975. "Some Pragmatic Conditions on Complementizer Choice, CLS 11.

SUBJECT-RAISING--A UNITARY RULE?

Gloria Sheintuch

In this paper I shall discuss some of the various positions linguists
have taken on the issue of whether or not subject-raising into subject and
object positions is a unitary rule. I shall argue that there is no con-
vincing evidence for an a priori unitary formulation of subject-raising into
both subject and object positions as a single rule, and shall bring some
evidence from Persian for the justification of separate rules for the processes
of subject-raising into subject and object positions.

Subject-raising is a transformational process that derives a surface
structure like:

1) I believe Jean to be ridiculous.

in which "Jean" is the direct object of the matrix verb "believe", from
sentence 2) in which "Jean" is the subject of the complement clause:

2) I believe (that) Jean is ridiculous.

There is enough evidence to establish the derivational (or trans-derivational)
relationship between the sentences. I shall not go into this in any detail,
as Paul Postal has treated this subject rather exhaustively in On Raising. In
any case, the rule of subject-raising has taken out the subject of the object
complement "Jean is ridiculous" and raised it into the position of direct object
of the matrix verb. One test to acertain the derived objecthood of "Jean" in
1) is the passive transformation which promotes a direct object into subject
position within a clause:

3) Jean is believed to be ridiculous.

Postal, in the above mentioned work gives scores of sound arguments justify-
ing the claim for the derived objecthood of the underlying subject of the
embedded object complement via the rule of subject-raising for English.

The rule of subject-raising also operates on underlying structures such as:

4) [John will win] is likely.

to move "John" the subject of the subject complement up to become the subject
of the higher matrix verb "is likely":

5) John is likely to win.

The rest of the complement is extraposed to the end of the sentence.

The process(es) of subject-raising into subject and object-positions are
usually optional, and are governed by the matrix verb. In English subject

raising into object position is governed by transitive verbs such as "want", "believe", "expect", and "consider", all of which take object complements. "Consider" is an example of a verb governing obligatory subject-raising:

6) *I consider (it) that John is crazy.

7) I consider John to be crazy.

Some of the intransitive verbs that govern the raising of the subject of a subject complement into the higher S to become its subject are "seem", "turn out", "appear", "happen", and "be likely". Subject-raising is obligatory if the higher verb is "tend" or "begin":

8) *That John is helpful tends.

9) *It tends that John is helpful. (where extraposition has applied)

10) John tends to be helpful.

Rosenbaum (1967) discusses the transformational processes involved in raising the subject NP of a complement S into the matrix S. He presents an analysis in which a rule he calls "pronoun replacement" operates to lift the subject NP of the complement of the matrix verb into the higher S to replace the "it" pronoun and to assume its grammatical role, subject or object, whatever the case may be. I shall not address myself to the issue of whether there is any justification at all for an underlying "it" pronoun, since it is irrelevant to the discussion. I shall likewise ignore the issue of whether complementizer choice in English is relevant to the process of subject-raising, and if so, how that relation is to be accounted for. The "pronoun replacement" rule, as Rosenbaum presents it, would operate on an underlying structure like:

11) I believe [Jean is ridiculous].

to generate the surface structure in sentence 1).

Rosenbaum didn't work out the details of his "pronoun-replacement" rule, but he viewed subject-raising into both subject and object positions as cases of the same syntactic process, and therefore proposed a single rule to capture that process. Since Rosenbaum was working in a syntactic framework that was structurally oriented, where grammatical relations were captured in terms of precedence and dominance relations, he needed an identical structural description for subject-raising into both positions. To do this he had to "manipulate" the syntactic underlying structure of a S with a subject complement, so that the complement would appear after the matrix verb, and contribute

towards the uniformity of structural description he was short of. He
achieved this by proposing that some extraposition rule apply prior to
subject-raising, moving the subject complement after the matrix verb. In
the case of subject-raising into object position this rule of extraposition
would not affect the linear order of the sentence--that is to say it
applies vacuously. Thus in this system:

    12) D. S.: It [Bill broke his leg] happened.

    13) Extraposition: It happened [Bill broke his leg].

    14) Subject-raising: Bill happened to break his leg.

    Rosenbaum's ad hoc positing of "it" in the D. S. and his "engineered"
ordering of the extraposition rule before subject-raising, and thereby
implying that extraposition is cyclic, does not even succeed in producing
a neat and elegant formulation of the process(es) of raising into both
positions as a single unitary rule. Within a framework that assumes an
S.V.O. underlying order for English, the difference in the structural
characterization and linear positions of the two NP positions into which the
subject of the complement could be raised, namely that subject $\equiv$ (NP; S)
usually appearing before the verb and object $\equiv$ (NP; VP), usually appearing
after the verb (the subject of a S is the NP immediately dominated by
that S, and the object is the NP immediately dominated by the VP), would
not permit a unitary structural description for the two instances of
subject-raising.

    Though a single unitary rule of subject-raising could not be easily
formulated, the unity of the subject-raising process(es) was not seriously
questioned or investigated by linguists until lately. I am not saying
at this point that the failure or difficulty to come up with an elegant
formulation necessarily is an indication of something suspicious about the
rule. What I am merely suggesting is that in every case of rule formula-
tion, and even more so in the complex, inelegant cases, before reaching
any final generalization about some linguistic phenomena, there are some
criteria, both empirical and theoretical that must be considered and ex-
amined to make sure that this particular generalization is warranted.

    Even as recently as three to four years ago the unity of the two processes
of subject-raising was still being taken as for-granted by many linguists.
McCawley (1970) took the unity of the rule for granted to such an extent
that when he agreed for a V.S.O. underlying word order for English, one

of the arguments he brought up was that a V.S.O. underlying order would
provide a more compatible framework for the formulation of subject-raising
as a single elegant rule. Postal (1974) agrees with and supports McCawley
on this point. Within a theory which assumes a V.S.O. underlying structure
for English, the rule of subject-raising would be formulated as:

15) Subject-raising
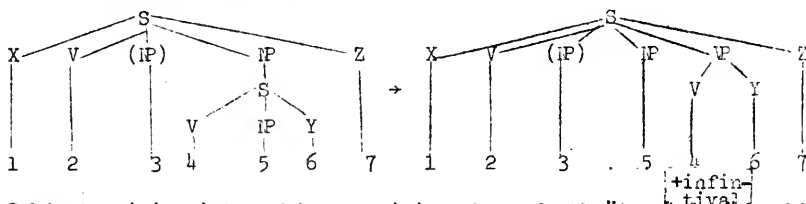
Subject-raising into subject position, henceforth "A-raising" could
be formally shown to be a specific case of the general rule given above:

16) A-raising:
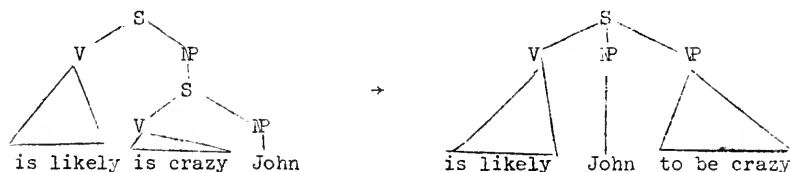
where X, Y, Z = ∅, the optional (NP) does not show up.

Likewise, subject-raising into object position, henceforth "B-raising,"
could be a case covered by the same general rule of subject-raising:

17) B-raising:
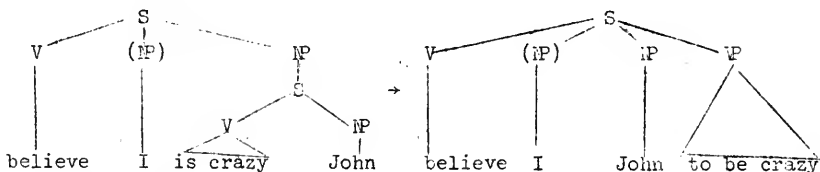
where X, Y, Z = ∅

Then a later rule would invert the linear positions of the subject and
the verb, yielding the English surface structure of S.V.O. In spite of the
engineered elegance of the rule of subject-raising, I think that such a
treatment of the process is questionable. It seems to me, that just as one
would not necessarily reject a certain descriptively adequate rule of
grammar as linguistically implausible--that is claim that the rule does not

probably capture correctly the speaker's knowledge—simply on the grounds
that the formulation of that rule is too complex, one should not accept a
rule as the correct characterization of "what is going on in the head of
the native speaker" merely on account of its simplicity. The rejection of
one rule or the acceptance of the other should be determined primarily on
empirical grounds. The fact that by positing the V.S.O. underlying order
for English, one is able to come up with a simple formulation of the
process(es) of subject-raising into both subject and object positions as
a simple unitary rule reflects nothing on either the issue of whether or
not subject-raising is a single rule or whether or not the V.S.O. under-
lying order for English is justified.[2] Each of these issues must be
settled empirically on independent grounds. It seems to me that the
burden of the proof falls on the one who advocates a V.S.O. rather than
S.V.O. underlying structure for English, since he is arguing for a more
abstract underlying form for all sentences of English. McCawley brings
up as one piece of evidence for the V.S.O. underlying order for English
a weak argument based on the "shaky" notions of "elegance" and "simplicity"
of an even more "shaky" unitary rule of subject-raising. He then has
made use of what Zwicky calls "an analytical leap" to extend this some-
what weak and questionable V.S.O. underlying structure for certain S's of
English to all S's of English.

To illustrate my point, I will show that using a V.S.O. underlying
structure for sentences of English, one can carry too far the idea of a
unitary formulation of raising. Within a theory that accepts the V.S.O.
underlying structure for English, one can conceive of a relatively simple
rule that could capture A-raising, B-raising, as well as certain cases
of "tough-movement" raising as one unitary process, a view not too many
linguists would care to adhere to.

The grammatical rule generally referred to as "tough movement" in-
volves an optional process of raising an underlying direct or indirect
object of a subject complement to become the derived subject of the matrix
verb. The rule is governed by the matrix verb which consists of $BE + \begin{Bmatrix} ADJ \\ NP \end{Bmatrix}$
such as "is easy", "is fun", "is a chore", and "is a joy." The application
of tough movement to an underlying sentence such as:

18) ["unspecified" give the book to John] is impossible.
where the subject complement has an unspecified subject that does not show

up in surface structures, would generate:

    19) The book is impossible to give to John.

Another surface variant of 19) is:

    20) It is impossible to give the book to John.

In some linguistic literature a structure like 20) is often given as the input to the tough movement rule--a view I consider rather questionable. I shall not go into this matter, and for the purposes of this work shall use 18) as the input to the rule of tough movement. In terms of tree configurations, the structural description 18) and the structural change 19) of the tough-movement rule within a V.S.O. framework is as follows:

    21) Tough-movement:

is impossible give the book to John   is impossible the book to give to John
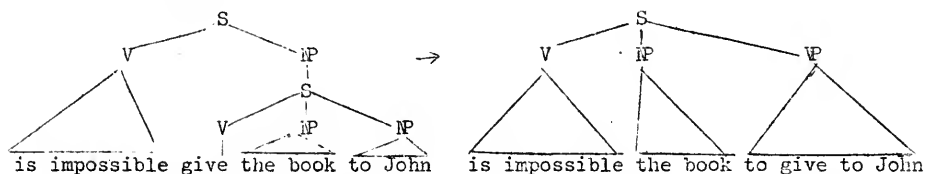
where the unspecified embedded subject is assumed to have been deleted (by virtue of "clever engineering" rather than independent justification) prior to tough-movement, thus rendering the formulation of the rule of tough-movement raising for the example above no other than a case of the "so-called" rule of subject-raising formulated in 15).

    We see that within a V.S.O. framework, the notions subject and direct object cannot be defined in terms of dominance relations, so that the only device available for defining these grammatical relations are precedence relations. Thus the notions "subject" and "object" are not uniquely defined and may be subject to change with every case of NP deletion, NP insertion, and any other rule involving linear re-ordering such as topicalization, in the course of the derivation of a particular sentence. Therefore, since the notions "subject" and "object" are not uniquely definable in a V.S.O. framework, then both A-raising and B-raising can be captured as one rule by placing an optional NP mode after the matrix V in the structural description of the rule. Likewise, subject-raising--the raising of a subject from a complement--and some cases of tough-movement involving the raising of a direct object from a complement clause can be construed as one rule by excluding the unspecified subject NP of the complement from the structural description of the rule.

Yet, in spite of this "equally elegant engineering" to produce a single rule for all the three processes of:

1. Raising of lower subject to higher subject.

2. Raising of lower subject to higher direct object.

3. Raising of lower direct object to higher subject (when the lower subject has been deleted).

linguists would be hesitant to make the generalization that some cases of tough-movement and all cases of subject-raising are instances of the same rule. Some of the arguments that can be given favoring the distinction between subject-raising and tough-movement raising are:

1. There is a syntactic process in English which raises indirect objects to become the subject of the matrix S, that is to say there are cases in which the second or third, etc. NP after the V of the complement clause is raised into the higher S to become its subject. Such cases, though they share many properties, such as rule government for example, with tough-movement raising, cannot be formulated as in tough-movement raising as a unitary rule with subject-raising. Thus for example:

22) John is impossible to give the book to.

is derived from the underlying 18) where "John" is the second NP after the lower verb. One cannot a priori claim that the raising of lower direct object to higher subject when the lower subject has been deleted is a case of the subject-raising rule rather than the syntactic process just described. One must check further to determine with which process, if any, it shares features that warrant a unitary formulation.

2. Sentences such as:

23) John is impossible for me to feed.

cannot be captured by the subject-raising rule 15), because where the subject

of the complement is specified, the direct object NP is no longer the first
NP after the lower V, and therefore would not satisfy the structural descrip-
tion of that rule.

3. Tough-movement or the raising of the complement's object is not
bounded to the adjacent clause, while subject-raising is bounded, such that
a raised subject is restricted to a next higher clause. Examples:

24) Harry is difficult for me to believe that John knows
      Mary loves.

which is derived from:

24)

S_1

S_2 is difficult

I believe S_3

John knows S_4

Mary loves Harry
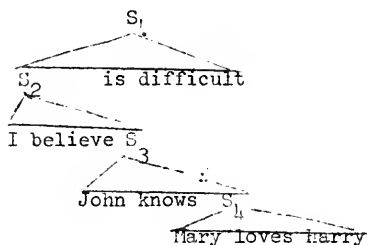
where "Harry" is raised three clauses up. Subject-raising is constrained to
the next higher adjacent clause. Thus if subject-raising were to apply to
the following underlying representation:

25)

S_1

seems

John knows S_3
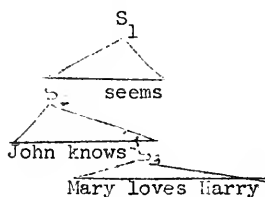
Mary loves Harry

to raise "Mary" two clauses up, an ungrammatical S would be generated:

26) *Mary seems to John knows loves Harry.

4. The rule of tough-movement, that is the raising of the lower object
to become a higher subject is blocked from applying to raise dative moved
NP's even though the structural description of the rule is met, whereas
subject-raising applies to raise any subject NP regardless of its source,if
the description of the rule is met. Thus from the underlying representation
17) one can derive 22) but not:

27) *John is impossible to give the book.

where the underlying indirect object "John" had undergone dative-movement.

5.   Tough-movement raising is governed by a.different semantic class
of verbs than the ones governing subject-raising.

6.   Tough-movement and subject-raising involve the raising of a different
grammatical relation NP--namely tough-movement raises a lower direct or in-
direct object into subject position, whereas subject-raising raises a lower
subject into either a subject or direct object position.

I have just shown that there are certain cases of tough-movement that
can be simply captured by a rule of subject-raising for English in a frame-
work which posits a V.S.O. underlying word order for the language. I have
also shown that such a unitary characterization, though possible, would be
incapable of capturing many significant generalizations about the two
processes. It is properties such as the grammatical relations involved in the
rule, rule government, the change induced by the rule, the types of grammatical
processes affected by its application, cyclicity, rule-ordering, boundedness,
constraints on rule application, whether global or local, co-occurence
restrictions, coreference relationships involved, etc. that play an important
role in determining which cases could be considered as part of the same
process and which should be excluded as part of another process.

A theory of relationally based grammar provides a linguistic framework
in which cross-linguistic universal properties and effects of a rule could
be captured, as opposed to a theory of structurally-based grammar, where
each rule is defined within a relatively more language-specific structural
framework. In a structurally based theory of grammar a language with a V.S.O.
underlying order would have a unitary rule of subject-raising whereas a
language with an S.V.O. order would have to either make do with an inelegant
unitary rule or would have to resort to two rules. Such arbitrariness in the
characterization of grammatical process is completely avoidable within a
theory of relationally-based grammar. In this respect at least a relationally-
based grammar is superior to a structurally based one. Working within a
relationally based grammatical theory, one would have a universal framework
in which to formulate rules for all languages regardless of their structural
make-up. The language-specific structures are imposed after the universal
grammatical-relation changing rules have applied. The treatment of subject-
raising in such a theory would be less misleading since the determination of
whether subject-raising is a unitary rule or two separate rules is not made

arbitrary depending on the structural formulation of the rule. In fact subject-raising in this system may be easily formulated as a unitary rule, namely:

28) The subject of the complement S is raised to the next higher S. Whether the subject is raised into the subject or object position is determined by certain universal metatheoretical constaints or grammatical-relation changing rules, the one relevant to this case being the "Relational Succession Law" which states that:

29) If a term is promoted by ascension, then it assumes the
grammatical relation of the host form which it ascends.

Thus a subject which is raised out of a subject complement becomes a subject and a subject raised out of an object complement becomes an object. However, even granting the validity of such a meta-theoretic constraint, one cannot make the claim that all cases of subject-raising are part of the same process by virtue of the identity of their formulation, both of which can be formulated as 28) without the necessity to mention the positions to which the subject is being raised in each case. To establish the claim that the rule is unitary one has to look into such factors as to whether or not both cases of subject-raising are governed by the same semantic class of verbs, whether they have the same constraints imposed on them, whether the relative ordering for each case with respect to other cyclic rules are compatible. Empirical issues of this kind, to me, seem crucial in determining whether or not the two instances can be construed as part of the same rule. On methodological grounds one can claim that the similarity of grammatical processes, formal and/or in their pragmatic effects, does not in itself call for the collapse of the process into one grammatical rule. Further independently motivated evidence should be provided in order to justify each a unitary formulation.

In the case of subject-raising it is true that both the A-raising and B-raising processes:

1. Involve the raising of a subject from a lower S
2. Are cyclic
3. Are bounded to the next adjacent S
4. Have either verb-less or infinitival complements in the surface output.
5. Are governed.
6. Presuppose the raised subject to be a contemporary of its derived clausemate--a IP of the matrix sentence. (This observation has been mady by Postal, 1974).

However, a listing of the similarities without looking for the dissimilarities involves as much of a "lie" as "telling part of the truth." In order to get a complete picture, one must not overlook the dissimilarities which include the following differences between the processes of A-raising and B-raising:

1. They involve different out-put grammatical relations, namely in A-raising a subject → subject, and in B-raising a subject →object.

2. They are governed by verbs from different semantic classes. B-raising is governed by transitive verbs taking object complements and A-raising is governed by intransitive verbs, taking subject complements.

3. In English A-raising is always accompanied by linear extraposition, while B-raising is not. I will not go into the issue of whether it is justified to include extraposition as part of the A-raising rule.

4. They have different ordering relations with other rules within the cycle. Contrary to B-raising there is no evidence that A-raising needs to be ordered, intrinsically or extrinsically, relative to passivization, within a given cyclic S. Traditional transformational grammar treats B-raising as intrinsically ordered before passivization within the same cyclic S_i:

30) D.S.: $[_{S_i}$ I believe $[$John is a thief$]_{S_i}]$

31) B-raising: $[_{S_i}$ I believe John to be a thief$]_{S_i}$

32) Passivization: $[_{S_i}$ John is believed to be a thief$]_{S_i}$

However, if A-raising is viewed as governed by intransitive verbs taking subject complements only, it cannot interact with passivization, which is governed by transitive verbs, within the same cyclic S_i:

33) D.S.: $[_{S_i}$ [John is a thief] is likely$]_{S_i}$

34) A-raising: $[_{S_i}$ John is likely to be a thief$]_{S_i}$

In both sentences 33) and 34) passivization cannot apply on the Si cycle. Thus by using the "trick" of having a non-unitary specification of rule-governing

elements for an "allegedly" unitary rule, Transformational Grammar has been
able to get around the issue of non-unitary rule ordering of subject-raising
with respect to passivization. However, if one is to interpret the traditional
Transformational treatment of subject-raising as a unitary rule to imply that
since A-raising and B-raising are cases of the same rule, they are governed
by a single common semantic class of verbs including all the verbs that take
sentential complements from which a subject can be raised, then A-raising may
interact with passivization within a cyclic Si. Thus a sentence like 30)
may be analyzed as undergoing both passivization and A-raising on the Si
cycle if (and only if) passivization applied first, changing the sentential
object complement of "believe" into its subject:

$$35) \quad \left[\begin{array}{l} \text{[John is a thief]} \quad \text{is believed.} \\ S_i \end{array} \right. \left. \begin{array}{r} \\ S_i \end{array} \right]$$

Then A-raising would apply to generate:

$$36) \quad \begin{array}{ll} \text{[John is believed to be a thief.]} \\ S_i \end{array} \qquad \begin{array}{r} \\ S_i \end{array}$$

Such an analysis involves A-raising being governed by the same higher verbs
as B-raising, the example used in this case being the verb "believe." I
will not go into the complications such a view might involve, but it would
be sufficient to say that even granted that no complications are involved, one
could not motivate a unitary formulation for the two processes of raising
using this latter interpretation of a unitary governing class of verbs for
both processes. Such an interpretation ends up, at its best, provided that
it makes the claim that all sentences with the structure of 36) undergo
passivization prior to A-raising within the cycle, with an equally indeterminate
position as that of the old interpretation. In either interpretation it is
only one of the two processes of subject-raising that interacts with the rule
of passivization within a given cycle, and that is ordered with respect to it,
so that the non-interacting subject-raising process would vacuously "take on"
the other's ordering, without having the potential to conflict with it.
Though I admit that this fact does not render subject-raising a non-unitary
rule, I am sure it would be invalid to make a claim to the effect that the
rule of subject-raising is unitarily ordered before passivization, so that a
unitary formulation of the rule is at least partially motivated. At its
worst, this new interpretation may end up with conflicting rule ordering
between each case of the two processes of raising with respect to passivization.

If one makes the claim that in all sentences with the structure of 36) the
order of passivization with respect to subject-raising within the Si cycle
is optional, then both analyses are possible. However, such a position
would involve the following intrinsic ording within the cycle:

37) 1. B-raising, 2. Passivization, 3. A-raising

again strongly indicating that B-raising and A-raising are individual rules
separated in the cycle by an intervening passivization rule.

5. The types of grammatical processes effected by them are distinct.
B-raising is motivated in the most part in order to explain why rules such as
reflexivization and passivization, for example. that ordinarily do not apply
across a clause boundary and whose operation is limited within the clause,
exceptionally apply across a clause boundary in some cases:

38) D. S.: John$_i$ believed [#he$_i$ was a fool#]

39) Reflexivation: "John$_i$ believed" himself$_i$ was a fool"

40) B-raising: John$_i$ believed him$_i$ to be a fool.

40) then undergoes obligatory reflexivization to produce the grammatical:

41) Reflexivization: John$_i$ believed himself$_i$ to be a fool.

for "he" has been moved up to become the clausemate of "John" to which it
is coreferent, so that the structural description of reflexivization is
met.

42) D. S.: People believed [#John was a fool#].

43) Passivization: "John was believed # was a fool".

44) B-raising: People believed John to be a fool.

45) Passivization: John was believed to be a fool.

The structural description for passivization is met by 44) since "John"
had been moved up to become the clausemate of "people".

However, A-raising does not have this type of effect on derivations.
Rather, A-raising explains a different type of exceptions, where certain
constituents that ordinarily occur in the immediate environment of the
first V in a VP sequence do not occur in the immediate environment of an A-
raising verb if it happens to be the first V in a VP sequence, but rather
occur in the corresponding immediate environment (in front of or after) of the
following V--behaving as if the A-raising verb were "invisible" to those
distribution processes. Examples of exceptions to regular distributions of
constituents in which A-raising verbs intervene involve processes such as
"there"-- insertion quantifier float, and discontinuity of idioms. All

these cases motivate A-raising by explaining that the seeming "invisibility" of the A-raising verb in certain phrases and structures is due to its exclusion from the VP, as a higher verb, not present in the S in which "there"-- insertion, quantifier float, or the idiom occurs:

46) D.S.: [A fly is in my soup] seems.

47) "There"--insertion: .[There is a fly in my soup] seems.

48) A-raising: There seems to be a fly in my soup.

46) meets the structural description of "there"-insertion, since "seem" does not belong to the same clause in which "there"-insertion applies to insert "there" in place of an indefinite NP which it moves to the right of the verb BE.

49) D.S.: [Each of them left separately] seems.

50) Quantifier-float: [They each left separately] seems.

51) A-raising: They seem to each have left separately.

49) meets the structural description of quantifier float, since "seem" does not belong to the same clause in which quantifier float has applied, deleting the preposition "of" and moving the quantifier to the right of the NP up to the verb "left" (unless the verb is a finite form of BE).

52) D.S.: [Illness struck him in his last days] seems.

53) A-raising: Illness seems to have struck him in his last days.

"Illness strikes someone" is an idiom, so that unless "seem" is introduced into the idiom via A-raising, one would be claiming that "illness seems to strike someone" is another idiom, listed separately in the lexicon of the language.

6. In some languages either one or each of A-raising and B-raising is subject to different constraints. If in a certain language there are different constraints imposed on different cases of a rule application, then the unity of the rule is suspect. Szamosi (1973) argues that A-raising and B-raising are to be construed as two separate processes. He shows that in French and Hungarian subject-raising from object complements is subject to certain constraints that do not hold for subject-raising from subject complements, namely that in these languages the subject of an object complement, as opposed to that of a subject complement, may be raised if and only if the predicate of the complement does not contain a verb:

54) A-raising: Robert semble (être) intelligent.

55) B-raising: On considère Robert (*être) intelligent.

56) A-raising: Robert semble avoir réussi à ses examens.

57) B-raising: *On considère Robert avoir réussi à ses examens.

Whether one would want to claim that there is an obligatory "to be" (copula) deletion after B-raising in the case of 55) or to agree with the implications of Szamosi's formulation of the constraint on the operation of B-raising in French (and Hungarian) that B-raising operates on subjects of object complements whose predicates are verb-less --the implication being that either there is no copula in the complement clause in the D.S. or that the copula is deleted at a stage in the derivation prior to B-raising--is another interesting issue which is of no direct relevance to our discussion. Before I go on, however, I would like to mention that the latter position allows a more general formulation of the constraint on B-raising to cover both types of cases as in 55) and 57). In any case, the effect of both accounts is the same, namely that in French sentences B-raised objects and "verbal" complements (by "verbal" I mean "verb-containing") cannot co-occur. The fact that the postulating of this type of a constraint on A-raising is not warranted points to the need for the separation of the two rules of subject-raising in the grammar. Furthermore, and I think, cleverly, Szamosi shows that since the same restriction holds for the passive version of the sentences with B- raised objects:

58) Robert est considéré (*être) intelligent.

59) *Robert est considéré avoir réussi à ses examens.

This generalization can be captured by relating the passive sentences to their respective active paraphrases, which have the same distribution of grammaticality. However, this correspondence in grammaticality between the active and the passive sentences is lost if one is to account for A-raising and B-raising by a single unitary rule of subject-raising. In the case of a unitary rule of subject-raising "considère" would be able to trigger A-raising as well as B-raising so that 62) could be possibly derived in two ways. The more "accepted" derivation has B-raising apply to the D.S. 60) raising "Robert" to become the direct object of the matrix S as in 55) which, in turn, undergoes passive, making 'Robert" the subject of the sentence in 62). However, one could not rule out the second derivation which would have passivization apply to change the sentential object complement into a subject complement from which a subject would be raised.

D.S.: 60) On considère [Robert (est) intelligent.]

Passivization: (1) [Robert (est) intelligent] est consideré.

A-raising: 62) Robert est considéré (*être) intelligent.

Besides its failure to rule out one of two possible derivations, a unitary formulation of subject-raising would allow for an analysis in which 62) is derived via passive and A-raising. This latter analysis would be undersirable, since to be able to account for the ungrammaticality of:

63) *Robert est considéré être intelligent.

one would have to claim that it is a property of the verb "considère" not to allow subject-raising from complements with verbal predicates. Such a position implies that it is an accident that all and the only such exceptional matrix verbs consist of the object-embedding verbs. But to separate subject-raising into A-raising and B-raising would restrict A-raising to be governed by verbs which take subject complements, and thus would automatically establish the intrinsic ordering of B-raising before passivization in the cycle. In such an account only one derivation is possible and the ungrammaticality of the passive sentence with B-raised objects and complements with verbal predicates would be explained by the general constraint on the application of B-raising, which is motivated on independent grounds.

In the rest of this paper I shall bring up evidence of this latter type--namely the difference in the language-specific constraints on the two rules of raising--in order to establish more firmly the position that A-raising and B-raising should be construed as two separate rules. for this purpose I shall use Persian. But before I do so, I would like to justify the A-raising and B-raising rules for Persian.

Persian is a S.O.V. language. Evidence for A-raising in this language comes from sentences such as:

64) be-nazar-am   miresad (ke)   parviz divane { bašad / ast / šod }

to-sight-my   reaches (that)   Parviz   mad   { be (subjunctive) / is / become }

seems to me

'It seems to me that Parvix is / became   mad.'

whose subject complement has undergone obligatory extraposition. The deep structure for 64) is of the form:

$$65) \quad [\text{parviz divane} \begin{Bmatrix} \text{ast} \\ \text{šod} \\ \text{bašad} \end{Bmatrix}]\text{benazaram miresad}$$

$$[\text{Parviz} \quad \text{mad} \begin{Bmatrix} \text{is} \\ \text{became} \\ \text{be (subjunctive)} \end{Bmatrix}] \text{ seems to me}$$

Other syntactic surface variants of the above deep structure are:

66) parviz divane benazaram miresad

   Parviz mad seems to me.

   'Parviz seems to me to be mad.'

$$67) \quad \text{parviz benazaram miresad} \quad (\text{ke}) \quad \text{divane} \begin{Bmatrix} \text{ast} \\ \text{šod} \\ \text{bašad} \end{Bmatrix}$$

$$\text{Parviz seems to me} \quad (\text{that}) \quad \text{mad} \begin{Bmatrix} \text{is} \\ \text{became} \\ \text{be (subjunctive)} \end{Bmatrix}$$

   'Parviz seems to me to be mad.'

"Parviz" has become the matrix subject in 66) and 67), thus triggering agreement in the matrix verb "miresad" which ends with -ad; the third person singular ending. If "Parviz" is replaced by a plural compound subject "Parviz and Bijan" the verb would take the third person plural suffix -and:

69) parviz-ve-bijan divane benazaram miresand

   Parviz and Bijan mad seem to me

   'Parviz and Bijan seem to me to be mad.'

$$69) \quad \text{parviz-ve-bijan benazaram miresand} \quad (\text{ke}) \quad \text{divane} \begin{Bmatrix} \text{astand} \\ \text{šodand} \\ \text{bašand} \end{Bmatrix}$$

$$\text{Parviz and Bijan seem to me} \quad (\text{that}) \quad \text{mad} \begin{Bmatrix} \text{are} \\ \text{became} \\ \text{be(subjunctive)} \end{Bmatrix}$$

   'Parviz and Bijan seem to me to be mad.'

Notice that if the complement retains the verb, it must be extraposed, and the complementizer "ke" optionally appears as in 64), 67), and 69). If the complement loses its verb as in the A-raised sentences 66) and 68), then extraposition does not apply and the complementizer "ke" does not appear. Though I use the terms "retain" and "lose" the verb, I am not yet ready to commit myself to the position that the verbal element was underlyingly present in the deep structure, though I do strongly suspect that it is a fairly reasonable analyis. Also it may be of interest to note at this point that the non-subjunctive versions of 67) and 69) convey a greater certainty on the part of the speaker regarding the statement made about the raised subject:

   In Persian a subject pronoun can be optionally deleted:

70) (u) divane šod.

he mad became.

'he became mad.'

since the subject pronoun is completely recoverable from information in the verbal suffix which indicates the person and the number of the subject. The question may arise whether sentences 67) and 69) can be considered to have been derived from a similar sentence, but with a complement whose subject has undergone the optional subject pronoun deletion, rather than the A-raising derivation, implying that the matrix subject is basic in the underlying representation, especially since in certain cases the verb in the complement remains tensed and marked for person and number. Such an analysis is implausible, for if the "supposed" optionally deleted subject is not deleted the sentences are ungrammatical:

71) *parviz benazaram miresad (ke) u divane $\begin{Bmatrix} \text{ast} \\ \text{šod} \\ \text{bašad} \end{Bmatrix}$

Parviz and Lijan seem to me (that) they mad $\begin{Bmatrix} \text{are} \\ \text{became} \\ \text{be (subjunctive)} \end{Bmatrix}$

Another unlikely alternative to the analysis that subject-raising has applied to generate 67) from 65) is the view that 67) has been derived via equi-NP deletion from:

73) parviz$_i$ [parviz$_i$ divane $\begin{Bmatrix} \text{ast} \\ \text{šod} \end{Bmatrix}$]benazaram miresad.

Parviz [Parviz mad $\begin{Bmatrix} \text{is} \\ \text{became} \end{Bmatrix}$]seems to me.

Then equi-NP deletion would apply to delete the second "Parviz'--the subject of the complement clause--coreferential to the higher NP "Parviz". Equi-NP deletion would be followed by an obligatory extraposition rule which moves the complement to the end of the sentence. However such an analysis is unmotivated, for it allows for an intransitive verb "benazar residan" to take a sentential object complement. The verb "benazar residan" can under no circumstances take a direct object:

74) *Ali parviz-ra benazar miresad.

Ali Parviz- definite direct object marker seems

However the obligatory extraposition of the complement to the end of the sentence occurs as part of the regular equi-NP deletion process in Persian:

75) D.S.: man [man bozorg $\begin{Bmatrix} \text{astam} \\ \text{šodam} \end{Bmatrix}$] mixam

I [I big $\begin{Bmatrix} \text{am} \\ \text{became} \end{Bmatrix}$] want

76) Equi-IP deletion: man mixam (ke) bozorg $\begin{Bmatrix} ^*astam \\ ^*\check{s}odam \\ ba\check{s}am \end{Bmatrix}$

         I   want (that)   big $\begin{Bmatrix} ^*am \\ ^*became \\ be\ (subjunctive) \end{Bmatrix}$

       'I want to be big.'

Notice that equi-IP deletion in Persian produces a subjunctive form of the verb in the complement, so that a tensed verb in the complement makes the sentence ungrammatical. This is definitely not the case in sentences like 67). To be able to "conjure up" an equi-IP deletion analysis for sentences of type 66) is even more unlikely than for 67), for besides all the previously mentioned difficulties, it seems there are additional ones, one of them being that the obligatory extraposition characterizing the equi-IP deletion in Persian fails to occur. Another problem is that in 66) the complement is verbless, whereas a sentential complement reduced as a result of the equi-P deletion is never non-verbal:

    77) *man   mixam (ke) bozorg. (extraposed)

        I   want (that) big.

    78) *man bozorg mixam (non-extraposed)

        I   big   want.

    Thus the rule of A-raising in Persian can be summarized as the subject of the sentential subject complement is raised to subject position in the next higher S. The reduced complement will not be extraposed if it is non-verbal (that is if the underlying complement verb is a "non-weighty" verb BE that is deleted at some stage in the derivation), and will be extraposed with "ke" as an optional complementizer if it contains a verb. The verb can be either tensed or subjunctive. If the complement has a semantically more weighty verb than BE or BECOME, then the verb is not deletable, and therefore the reduced complement is extraposed:

    79) D.S.: [parviz maryam-ra dust darad] benazaram miresad

            [Parviz Mary definite like has]   seems to me.
                      d.o. marker loves

    80) A-raising: parviz benazaram miresad (ke) maryam-ra $\begin{Bmatrix} dust\ darad \\ dust\ da\check{s}te \\ ba\check{s}ad \end{Bmatrix}$

                 Parviz seems to me (that) Mary - definite $\begin{Bmatrix} loves \\ love\ (subj.) \end{Bmatrix}$
                                  d.o. marker

        'Parviz seems to me to love Mary.'

Again here the tensed "dust darad" is used to express a certainty on the part of the speaker about the statement, while the subjunctive "dust dašte bašad" is used to express that the contents of the complement is the subjective opinion of the speaker.

Evidence for B-raising in Persian comes from sentences such as:

81) maryam hesab mikonad (ke) bače divane $\left\{ \begin{array}{l} \text{ast} \\ \text{šod} \\ \text{bašad} \end{array} \right\}$.

   Mary count does(that) child mad $\left\{ \begin{array}{l} \text{is} \\ \text{became} \\ \text{be (subjunctive)} \end{array} \right\}$.
   considers

   'Mary considers the child to be mad.'

which seems to have been derived from structures that have undergone obligatory extraposition, applying to all sentential object complements. Thus the underlying representation for 81) is:

82) D.S.: maryam$\left[\text{bače divane} \left\{ \begin{array}{l} \text{ast} \\ \text{šod} \end{array} \right\} \right]$ hesab mikonad

   Mary [child mad $\left\{ \begin{array}{l} \text{is} \\ \text{became} \end{array} \right\}$] considers

A syntactic variant of this sentence is:

83) maryam bače-ra   divane hesab mikonad(eš)

   Mary child-def.   mad   considers it
            d.o. marker

   'Mary considers the child to be mad.'

In this case "bače" the subject of the object complement has become the object of the matrix verb, as indicated by the -"ra" marker for definite direct objects which is attached to it. "bače" also takes the direct object position, which is after the subject, and before the verb. At this point, I realize that I have not given any syntactic evidence showing that the supposedly raised "bače" has been in fact the underlying subject of the complement, though empirical evidence for this can be produced. I have not dealt with the production of such proof in this paper, since I am not so concerned with the formalism of the proof as with the characterization of the process. Howevever, I will mention the well-known argument: the selectional restrictions between "bače" and the verbal complement being exactly those that obtain between a subject and a verb, then to claim that each sentence structure was generated separately in the base by different phrase structure rules would miss important generalizations.

One test for the derived "objecthood" of "bače" is the "-ra" transportation rule. The definite direct object marker "-ra" in a non-extraposed restrictive

relative clause in Persian can be transported to the head P with the deletion of the optional shadow pronoun in the relative clause if the head IP is not marked with respect to case, that is to say it is the matrix subject:

84) bače-i-ke diruz (u-ra) didam-(eš) gašang ast.

    Child-a-that yesterday (it-definite)   I saw (he) pretty is.
                          d.o. marker

    'The Child I saw yesterday is pretty.'

85) "-ra" transportation:

    bače-i-ra -ke   diruz didam-(eš) gašang ast.

    Child-a-definite-that yesterday I saw-(it) pretty is.
               d.o. marker

    'The child I saw yesterday is pretty.'

"-eš" is an optional object clitic attached to the verb. This object clitic becomes obligatory if the relative clause is extraposed and the optional pronoun copy does not appear on the surface structure:

86) bače-i- mariz šod ke diruz didam-*(eš)

    child-a sick became that yesterday I saw-it.

    'A child became sick, who I saw yesterday.'

Like underlying objects, objects derived via B-raising may undergo the "ra-" transportation rule:

87) bače-i-ke maryam (u-ra) divane hesab mikonad-(eš) gašang ast.

    Child-a-that Mary (it-definite)   mad considers-(it) pretty is.
                        d.o. marker

    'The child Mary considers to be mad is pretty.'

88) bače-i-ra-ke   maryam divane hesab mikonad-(eš) gašang ast.

    Child-a-definite   -that Mary mad considers-(it) pretty is.
               d.o. marker

    'The child Mary considers to be mad is pretty.'

Another test for the derived objecthood of bače in 83) is the syntactic process of passivization which operates to promote direct objects into subject position, generally deleting the underlying subject, rendering Persian passive sentences agentless. This rule operates on 83) to yield the grammatical sentence:

89) bače divane hesab mi-šavad

    child mad considered is

    'The child is considered to be mad.'

Since the verb in the complement is semantically non-weighty such as BE, one
might claim that an obligatory "to be" deletion rule has applied to all
complements whose subjects have been B-raised. Such a rule would call for
a much less general constraint on the application of B-raising, restricting
its application so that it raises the subject of sentenial object complements
that are either non-verbal or which contain the verb BE; however, I shall
not go into this issue in my paper. What is significant at this point is
that a B-raised NP does not co-occur with a verb containing complement. Such
a non-verbal complement is not extraposed and has no complementizer to intro-
duce it. Sentences with a B-raised object and a complement containing a
verb are ungrammatical with or without the complementizer and irrespective
of whether the complement verb is tensed or not:

90) *maryam bače-ra hesab mikonad   (ke) divane $\begin{cases} \text{ast} \\ \text{šod} \\ \text{bašad} \end{cases}$

      Mary child-definite   considers that mad $\begin{cases} \text{is} \\ \text{became} \\ \text{be (subjunctive)} \end{cases}$
              d.o. marker

      ('Mary considers the child to be mad.')

1)*maryam bace-ra hesab mikonad (ke) az otag birun $\begin{cases} \text{amade ast} \\ \text{amade bašad} \end{cases}$

      Mary child-definite   considers (that) from room out $\begin{cases} \text{has come} \\ \text{have come} \\ \text{(subjunctive)} \end{cases}$
              d.o. marker

      'Mary considers the child to have come out from the room.'
The question may be raised here of whether sentences such as 83) should be
characterized has having undergone "clause -union" rather than B-raising.
In a "clause-union"-type analysis one could say that the non-verbal predicate
of the complement S has been raised to form a single compound verb with the
higher verb, and its ex-subject has taken up the next empty slot in the Keenan-
Comrie heirarchy, namely the direct object position. I will not go into
whether or not a case can be made for such an analysis, though I do suspect
that such a case would be extremely "shaky," for the distribution of the
object clitic "-eš" reveals that the non-verbal predicate "divane" in 83) cannot
be construed as part of the higher verb. In Persian the object clitic "-eš"
can appear as a suffix to any of the elements in the verb. Thus 83) has a
surface variant in:

92)   maryam bače-ra divane hesab-(eš) mikonad.

Mary child-definite mad   count -(it) makes
            d.o. marker
                              considers it
'Mary considers the child to be mad.'
but not in 93), showing that "divane" has not become part of the higher verb:

93) *maryam bače-ra   divane-š hesab mikonad.

Mary child-definite   mad-it   considers
            d.o. marker

(Mary considers the child to be mad.')

One point in any case is obvious--that A-raising and B-raising are not
unitary in Persian. If one could make a case for clause-union or any other
analysis instead of B-raising, then Persian would have A-raising only, thus
excluding B-raising from the unitary description of subject-raising. If one
is to keep the B-raising analysis, which I believe is well-motivated, then
obviously B-raising is different from A-raising. A-raised NP's may occur in
sentences where the complement contains a verb and is extraposed, or
where it is non-verbal and non-extraposed, but B-raised NP's can occur only
with complements that are non-verbal and non-extraposed.

There is additional evidence in Persian showing that the restriction
on the application of subject-raising, blocking its application for sentences
with verb-containing complements, is a constraint on the output of B-raising
only, and does not extend to affect A-raising. Had both A-raising and B-
raising been subject to the constraint for certain matrix verbs, then this
constraint could have been considered to be governed by those matrix
verbs regardless of the type of subject-raising. Consider the sentences:

94) Active: mardom parviz-ra mard-e danešmand-i hesab mikonand

people Parviz-definite   man-adjectival learned-a consider
            d.o. marker   liason

'People consider Parviz to be a learned man.'

95) Active: * mardom parviz-ra hesabmikonand (ke) marde danešmand-i bašad

people Parviz def. consider(that)man-adj. learned-a   be
            d.o.marker   liaison

('People consider Parviz to be a learned man.')

96) Passive: parviz mard-e danešmand-i hesab mišavad.

Parviz man-adj. learned-a is considered
            liaison

'Parviz is considered to be a learned man.'

97) Passive: *parviz hesab mišavad (ke) mard-e danešmand-i bašad.
          Parviz is considered(that) man-adj. learned-a be.
                                        liaison

          ('Parviz is considered to be a learned man.')

The passive sentence 97) corresponding to 95) is also ungrammatical, the
explanation being that B-raising is constrained in sentences whose comple-
ments have verbal predicates. An alternative claim one could make is that
the constraint is uniform for both processes of raising and is governed
by the matrix verb hesab + AUXILIARY in 94)-97), so that 95) and 97)
could be derived via passivization on the matrix S followed by A-raising.
However this claim is not valid, since there are sentences with hesab +
AUXILIARY that undergo A-raising, but which are not subject to this con-
straint at all, indicating that the constraint is on the output of B-raising
alone, and implying that B-raising and A-raising are separate processes.
If so, then the passive sentences like 95) and 97) must be de-
rived via B-raising followed by passive:

98)   parviz mard-e danešmand-i behesab miayad.

     Parviz man-adj.   learned-a is considered (inchoative)
               liaison
     'Parviz is considered to be a learned man.'

99)   parviz be-hesab miayad (ke) mard-e danešmand-i $\left\{\begin{array}{l}\text{ast}\\\text{šod}\\\text{bašad}\end{array}\right\}$

     Parviz is considered (that) man-adj. learned-a $\left\{\begin{array}{l}\text{is}\\\text{became}\\\text{be (subjunctive)}\end{array}\right\}$
           [+inchoative]   liaison

     'Parviz is considered to be a learned man.'

Notice that in compound verbs in Persian the syntactic features "active,"
"passive," "inchoative," "causative," etc. are reflected in the choice of
the auxiliary verb.

    In Persian there is a sub-group of the B-raising verbs only (not A-
raising verbs) that allow raising even if the complement contains a verbal
predicate. This freer-type B-raising is governed by those higher verbs
whose object complements are factual. B-raising in such sentences results
in sentences with either extraposed verb-containing complements or non-
extraposed non-verbal complements:

100) D.S.: man [parviz divane ast] midanam.
             I   [parviz mad   is]   know

101) B-raising: man parviz-ra divane midanam $\left(\begin{array}{l}\text{non-verbal,}\\\text{non-extraposed}\\\text{complement}\end{array}\right)$

        I Parviz-definite mad know
                  d.o.marker

        'I know Parviz to be mad.'

102) B-raising: man parviz-ra midanam(ke) divane $\left\{\begin{array}{l}{}^{*}\text{ast}\\\text{bašad}\end{array}\right\}$ $\left(\begin{array}{l}\text{verb-contain-}\\\text{ing,extra-}\\\text{posed comple-}\\\text{ment}\end{array}\right.$

        I Parviz-definite know(that) mad $\left|\begin{array}{l}{}^{*}\text{is}\\\text{be (subjunctive)}\end{array}\right\}$
                  d.o. marker

        'I know Parviz to be mad.'

Notice that the verb in the extraposed complement is subjunctive, and may not
be tensed as opposed to sentences which have undergone A-raising.

This dichotomy of matrix verbs into those which take factive comple-
ments, and which can occur with either subjunctive or verb-less comple-
ments when triggering B-raising, on one hand, and those which don't take
factual complements, and which can occur with verb-less complements when
triggering B-raising, on the other hand, is limited to verbs governing b-
raising only. In fact, A-raising triggered by non-factive, conceptual or
perceptual verbs, unlike B-raising, is not limited in application to
sentences with any type of complement. For each A-raised sentence, there
are three syntactic variations: one in which the complement is verb-less,
one in which the verb in the complement is tensed, and one in which the
verb is subjunctive, irrespective of whether the governing verbs are
factive such as "happen" or "turn out" or perceptual such as "seem" or
"appear."

Subject-raising characterized as two separate rules, besides being
more accurate, I think, has the merit of preserving the universality of
the rules, in that it allows a separate formulation for the rules for
languages like Persian, Hungarian, and French in which A-raising and B-
raising behave differently, while not crucially affecting the languages in
which the two rules behave less differently from each other. Also such a
characterization would clarify some problems for English. Szamosi in his
article points out the fact that verbs such as "say," "acertain," "think"
(non-past tense), "rumor," etc. undergo subject-raising only in passive
as opposed to active sentences:

      103) John is said to be a liar.
      104) *I say John to be a liar.

He proposes a non-global account for these sentences, the global account
being that there is a global constraint on verbs like "say" such that if
they trigger subject-raising they must also trigger passivization.
Szamosi's non-global analysis accounts for these data by claiming that "say"
governs A-raising. Thus it can raise a subject out of a subject complement
derived via passivization:

  105) [John is a liar] is said.

With such an analysis there would be an intrinsic ordering of A-raising
after passivization within the cycle. This explanation for the behavior of
verbs like "say" is less ad-hoc than a global constraint. However, it
has a slight weakness in that "say" has to be listed together with the
semantic class of verbs that are intransitive, and that passive agent
deletion has to apply to the derivation:

  106) *John is said to be a liar by Mary.

This weakness can be easily remedied by having the impersonal verb "is
said" govern the A-raising rule--that is to have an independent impersonal
verb "is said," distinct from "say," which takes a sentenial subject comple-
ment just like "seem." This resolves both problems of positing a non-
uniform governing class of verbs and of leaving "unexplained" the obliga-
tory deletion of the passive agent in the construction. Note that this
analysis of "is said" does not necessarily imply that all subject-raised
passive constructions have the passive verb generated in the base. Such an
implication would be too "costly" in that it would lose many important
generalizations.

  It is interesting to note that the very "say" in Persian follows the
same pattern as in English:

   107) Active: *man ali-ra divane goftam
         I Ali-definite mad said
            d.o. marker

        ('I said Ali to be mad.')

   108) Active: * man ali-ra   goftam (ke) divane bašad
         I Ali-definite said (that) mad be
            d.o. marker

        ('I said Ali to be mad.')

   109) Passive: ali divane gofte šod
         Ali mad was said
        'Ali was said to be mad.'

110) Passive: ali gofte šod (ke) divane $\begin{Bmatrix} \text{ast} \\ \text{šod} \\ \text{bašad} \end{Bmatrix}$

Ali was said (that) $\begin{Bmatrix} \text{is} \\ \text{became} \\ \text{be (subjunctive)} \end{Bmatrix}$

'Ali was said to be mad.'

109) and 110) confirm that in fact passivization and A-raising have applied in that order rather than B-raising and passivization, since there is no constraint on the form of the complement, which can be non-verbal, tensed, or subjunctive, just as in all other cases of A-raising. We saw that Persian has convincing examples justifying the application of passivization prior to A-raising in some cases and of B-raising prior to passivization in others. Such an ordering suggests that A-raising and B-raising should be formulated as separate rules.

The different constraints-type argument for separate rules of subject-raising does not seem to be appropriate for English. Ann Borkin (1973) suggests that for B-raised sentences of English, the process of "to be"--deletion is governed by the matrix verb, namely that the matrix verbs from the semantic class expressing non-factive cognitive perceptions, opinions, or experience allow "to be" deletion:

111) I consider Harriet (to be) coarse and unfeeling.

112) I know harriet to be coarse and unfeeling.

113) #I know Harriet coarse and unfeeling.

We see from 113) that factive verbs do not allow "to be" deletion. If subject-raising (both A-raising and B-raising) were one rule, then A-raising verbs would also trigger such a dichotomy of factual vs. perception verbs, such that "seem" and "appear" being non-factive verbs, expressing one's judgement or perception should allow "to be"-deletion:

114) John seems (to be) happy.

115) John appears (to be) happy.

"Happen" being factive should not allow "to be"-deletion:

116) John happened to be sick.

117) *John happened sick.

Here we have seen that the English data is somewhat "deceptive," for unlike the Persian or French data, it shows that the constraints on A-raising and B-raising are uniform, so that one is led to believe, when depending largely on the English data, that the rule of subject-raising is

unitary. This also shows that by drawing too heavily from one single
language when making cross-linguistic characterizations, one may not be
aware of the language-specific pecularities of the rule, which must be
extracted from its formulation.

What I was trying to say in this paper is that one could not make
any claims about the unity of raising, or for that matter any rule, unless
having investigated the issue empirically. It is true that there are
several points in favour of A-raising and B-raising being caputred in one
rule. However one is to weigh the evidence for and against the unitary
treatment to see which seems to be less ad-hoc and captures the more sig-
nificant generalizations, though both seem to be in accordance with the
data. Also, since subject-raising is found in a great number of languages,
one should look into its behavior in other languages and draw implications
from them as well. To me, it seems that, in general, given certain
dissimilarities between two syntactic processes, the burden of the proof should
fall, on the most part, on the shoulders of the linguist who claims that
despite the differences a unitary rule for the processes more significantly
captures the generalizations. I don't want to sound conclusive (for I have
not investigated the matter exhaustively enough), but I think that until
the need for a unitary formulation for subject-raising should be demon-
strated for all languages that have subject-raising, for reasons I have
brought up in this paper, subject-raising should best be captured as two
separate operations. Such a position is likely to take linguistics a
step closer to universal cross-linguistically significant generalizations
about the processes.

FOOTNOTES

[1] I would like to thank Georgia M. Green and Charles W. Kisseberth for
reading and commenting on an earlier version of this paper.

[2] It was brought to my attention by Georgia Green that Arlene Berman
in a recent article "On V.S.O. Hypothesis" which appeared in Linguistic
Inquiry 1974 makes the same point and brings additional evidence against
the V.S.O. hypothesis. It is interesting to note that the same type of
criticism was made independently in each of the two works.

REFERENCES

Berman, 1974. "On the V.S.O. Hypothesis." Linguistic Inquiry.

Borkin, 1973. "To Be or Not To Be." Papers from the Ninth Regional Meeting Chicago Linguistic Society.

Green and Morgan, 1972. Guide to Syntax. unpublished mimeo

Johnson, 1974. Toward a Theory of Relationally-Based Grammar. University of Illinois dissertation.

Keenan and Comrie, 1972. "NP Accessibility Heirarchy." "unpublished mimeo

McCawley, 1970. "English as a V.S.O. Language." Language.

Postal, 1974. On Raising.

_____ and Perlmutter: "Relational Grammar." Class notes from courses taught by Morgan and Cole at the University of Illinois, 1974.

Rosenbaum, 1967. Grammar of English Predicate Complement Structures.

Szamosi, 1973. "On Unity of Raising." Papers from the Ninth Regional Meeting Chicago Linguistic Society.

Zwicky, 1973. "The Analytical Leap." Papers from the Ninth Regional Meeting Chicago Linguistic Society.

A STUDY OF PASHTO CLITICS AND IMPLICATIONS FOR LINGUISTIC THEORY[*]

Habibullah Tegey

Clitics and their behavior in Pashto[1] constitute a rather complex phenomenon that has not yet been studied. The present paper will attempt to treat the more basic and important aspects of this problem.

The paper potentially serves at least three functions. First, it offers a description of Pashto clitics, a description which has been totally lacking and which is sorely needed, for pedagogical purposes, for example, Afghanistan being a bilingual country utilizing both Persian and Pashto. Secondly, such a description of the behavior of clitics in Pashto adds another piece of data to the rather meager amount of information available in linguistic literature about clitics in languages where the clitics move to a certain position in the sentence and where they occur in a fixed order. Finally, certain of the observations made here have implications for linguistic theory iteslf. In particular, the various interactions between phonology and syntax[2] indicate that phonology and syntax do have relevance for one another and that a strict separation of phonological from syntactic processes is not possible. In fact, it will be seen that the usual assumptions of current linguistic theory that phonological processes apply after syntactic ones and that syntactic (transformational) rules need make no reference to phonological information cannot be maintained. Moreover, certain points in Perlmutter's explanation of the fixed order pf clitics either do not hold or stand in need of modification.

The paper is divided into six sections. The first section will present a brief overview of Pashto clitics, which is necessary before proceeding to the other sections. The second section will work through the data in Pashto for the purpose of setting up a suitable Surface Structure Constraint (SSC) on clitic order. It will also include a consideration of the relevance of phonology for the SSC. It will be suggested that not only must certain parts of the SSC be formulated using phonologically explicit items, but that part of the basis for the SSC may be the phonological shape of the clitics. It will also be suggested that it is due to their phonological shape that certain

out-of-order clitics within clitic sequences do not render the sentence ungrammatical. It will also be found that a single positive statement, such as Perlmutter has proposed as the proper notation for the SSC, is not adequate for Pashto and that some additional statement is necessary. The third section will explore the extent to which a "fixed order of morphemes in a word" kind of hypothesis (Perlmutter 1971:65) is capable of explaining why clitics must be rigidly ordered. The fourth section will establish the Clitic Placement rule, which is of considerable potential theoretical import since, to my knowledge, it provides the first clear evidence in linguistic literature that a transformational placement rule makes reference to stress. The fifth and final section will present evidence that there is a peculiar "backwards" (given the usual assumptions of linguistic theory) interaction between the rule of Clitic Placement and at least one phonological rule.

Pashto happens to be a rich source for the raising of such theoretical questions, and of questions relating to linguistic universals, because certain of its verbs are separable and because stress seems to play a larger than usual role.

1. Introductory Overview of Clitics

There are two types of clitics in Pashto--particle clitics and pronominal clitics. The particle clitics include two modal particles and an adverbial particle. The pronominal clitics may be possessives, or they may be personal pronouns used as past tense transitive subjects or non-past tense objects.[3] The clitics are given in (1):

(1) Adverbial   xo   =   indeed, really, of course
    Modals   ba   =   will, might, must
                 de   =   should, had better
    Pronominals me   =   1st singular
                 de   =   2nd singular
                 ye[4]   =   3rd singular and plural
                 -am[5] or mo = 1st and 2nd plural

Examples of clitics in sentences are given in (2):

(2)a. tor   xo   rAǧay   Tor indeed came.

   b.   tor   ba   rAsi   Tor will come.

   c.   tor   de   rAsi   Tor should come.

   d.   tor   me   wəlidə[6]   I saw Tor.

   e.   tor   de   wəlidə   You saw Tor.

   f.   tor   ye   wəlidə   He saw Tor.

   g.   tor   -am[7] wəlidə   We saw Tor (or) You saw Tor.

   h.   wror   me   rAǧay   My brother came.

   i.   wror   de   rAǧay   Your brother came.

   j.   tor   me   wini   Tor sees me.

   k.   wror   xo   ba   de   He must indeed have seen your
        brother indeed must your   brother.

        ye lidəlay wi
        he seen   is

The first and second persons inflect only for number. The plural
forms are the same for the first and second person. As noted in (1),
the 1/2pl form may be am or mo (when it is the only 1/2pl item in the
sentence, as we will see below). The form am is the one original to
my dialect, the "eastern" dialect, mo is from another dialect, the
"western" dialect. However, mo has been borrowed and is now used in
formal and official speeches by educated people of the "eastern"
dialect as well; in writing, mo is the only form used. That is,
for these speakers, the difference between am and mo is stylistically
or situationally determined. mo is the written and "formal"
style, and am the usual colloquial style. Since I use am and mo thus,
I will treat them both in this paper.

In the literary style (western dialect), the 1/2pl clitic is always
mo when it is the only 1/2pl clitic item in the sentence. Item (3)
illustrates:

(3)a.   motar mo   rAwostə   We brought the car. (or)
             car   we   brought   You brought the car.

   b.   Not: motar am rAwostə

When the sentence contains <u>two</u> occurrences of 1/2pl items, the pair
is always <u>am mo</u>:

(4)a. motara<u>m mo</u> rAwostə We brought <u>our</u> car.
                                 <u>You</u> brought <u>your</u> car.
                                 We brought <u>your</u> car.
                                 <u>You</u> brought <u>our</u> car.

  b. Not· motara<u>mam</u> rAwostə

  c. Not: *motar <u>mo mo</u> rAwostə

In my colloquial style (eastern dialect), in contrast, <u>am</u> is always used
whether one or two 1/2pl items occur:

(5)a. motar<u>am</u> rAwostə

  b. Not· motar <u>mo</u> rAwostə

  c. motara<u>mam</u> rAwostə

  d. Not: motara<u>m mo</u> rAwostə

In both styles/dialects, the <u>am</u> form occurs in two variants: the
variant <u>am</u> occurs following a consonant, and <u>m</u> occurs following a
vowel. (For the purposes of this paper, I will assume that <u>am</u> is the
basic form.) Item (6) illustrates:

(6)a. ǧwAm wAxista We bought the cow.
       cow we bought (ǧwʌ = 'cow')

  b. topak<u>am</u> wAxistə We bought the gun.
       gun we bought (topak = 'gun')

The third person does not inflect, either for number or gender.
Depending on the preceding segment, the third person clitic surfaces
in three different forms. It appears as /-e/ if the preceding morpheme
is consonant final. However, if the preceding morpheme is vowel-
final, it appears either as /ye/ or /-y/ depending on the stress of
the preceding morpheme. In such instances, when the preceding morpheme
is stress-final, the clitic appears generally as /ye/; otherwise it
appears as /-y/[8] (For convenience and clarity, however, I will use
primarily /ye/ in this paper.) Item (7) illustrates the three forms
of the third person clitic·

(7)a. topak<u>e</u> wAxistə He bought the gun.
       gun he bought

  b. túra<u>y</u> wAxistə He bought the sword.
       sword he bought

  c. burÃ <u>ye</u> wAxista He bought the sugar.
       sugar he bought

If the morpheme preceding the third person clitic consists of a single consonant plus /ǝ/, this /ǝ/ plus the clitic reduce to /-e/. (Precisely how the process takes place and what the underlying form of the third person clitic is need more study and will be treated in my dissertation; these questions are not crucial for the purposes of the present paper.) This process or Reduction Rule is presented schematically in (8):

(8) ǁ Cǝ́ +ǁ ye --> ǁ Ce +ǁ

The operation of this process is as presented in (9):

(9) a. *zǝ + ye gorǝm --> ze̱ gorǝm I'm meeting him.
        I   him see

    b. *wǝ + ye gora --> we̱ gora Meet him.
       PERF   him see

    c. *mǝ + ye gora --> me̱ gora Don't meet him.
       NEG   him see

2. Surface Structure Constraint on Clitic Orders

In Pashto, clitics of all origins and functions normally move to a particular position in the sentence, in which position they occur in a fixed and rigid order relative to one another. As Perlmutter has correctly proposed, their fixed sequencing relative to one another cannot be adequately handled transformationally. Some sort of variant of a Surface Structure Constraint (SSC) is necessary to account for their relative sequencing.

This section, therefore, will work through the data of Pashto with the purpose of setting up a suitable SSC on clitic orders. This is not a trivial task, since no one has ever worked out even an ordinary "clitic chart" as has been done in some other languages. And secondly under certain conditions certain of the clitics are allowed to appear out of their normal order--i.e. to violate the SSC. Determining just what those "certain circumstances" are reveals the interesting fact that the SSC is sensitive to the phonological shape of the clitics; in certain instances, if the phonological shape is altered, the filter does not act against them. Thus, it will be seen, certain phonological information must be encoded in the SSC's formulation. These same phenomena will be seen to indicate that a simply formulated SSC

as envisioned by Perlmutter is not adequate for Pashto's data. This section will also consider the question of the basis of the SSC's formulation--i.e. of why certain items are "assigned to the same column"; in certain instances, it will be seen that phonological shape is in all likelihood the cause, the why.

2.1 Setting up the SSC

There are various sequences of clitics which never occur in a grammatical sentence. The ungrammaticality of such sequences can be due sometimes to a violation of certain functional constraints[9] on the use of the personal pronominal clitics, which won't be our concern here, or to a violation of the surface constraints on the occurrence of clitic sequences, which will be treated here. It will be seen that the surface constraints on clitic sequences can be due either to the relative order of the clitics, or, simply to thier phonological shape. In this section, I will explore Pashto clitic orders for the purpose of establishing a SSC capable of covering the data.

Let us first confine ourselves to the pronominal clitics. Consider example (10), each item of which contains two pronominal clitics, in grammatical order:

(10) a. topak   me   de   rAworə   I brought your gun. (or)
        gun   PRO PRO   brought   You brought my gun.

     b. topak   me   -y   rAworə   I brought his gun. (or)
                                      He brought my gun.

     c. topak   de   -y   rAworə   You brought his gun.
                                      He brought your gun.

     d. topak   am   me   rAworə   I brought our gun.
                                      I brought your gun

     e. topak   am   de   rAworə   You brought your gun.
                                      You brought our gun.

     f. topak   am   ye   rAworə   We brought his gun.
                                      He brought our gun.

     g. topak   am   mo   rAworə   We brought your gun.
                                      We brought our gun.
                                      You brought your gun.
                                      You brought our gun.

The switching of the orders of the clitics will render all of the sentences in (10) ungrammatical. In other words, the sequences in (11a) are grammatical, but those in (11b) are ungrammatical:

(11) a. me   de   b.   *de   me
         me   ye   *ye   me
         de   ye   *ye   de

         am ⎧ me ⎫   ⎧ *me ⎫
             ⎪ de ⎪   ⎪ *de ⎪
             ⎨ ye ⎬   ⎨ *ye ⎬ (a)ᵐ
             ⎩ mo ⎭   ⎩ *mo ⎭

Thus the SSC on the relative order of the pronominal clitics can be tentatively formulized as (12):

(12)   1/2pl   1/2pl   1sg   2sg   3(sg&pl)

(This formulation will have to be modified, we will see later, due to phonological factors.)

The order of the particle clitics relative to each other is also fixed. Let us consider them separately first too. Consider (13), each item of which contains two particle clitics:

(13) a. tor   xo   ha pezane   (You) must of course know Tor.
         Tor of course must know

     b. *tor ba   xo pezane

     c. tor   xo   de rAsi   Tor should indeed come.

     d. *tor de   xo rAsi

     e. *tor ba   de rAsi   *Tor will should come.

     f. *tor de   ba rAsi   *Tor will should come.

The ungrammaticality of (19) (e) and (f) obviously has nothing to do with the relative order of clitics, since both orders, ba de and de ba are ungrammatical. The fact is that a sentence with two modals, ba "will" and de "should" would never semantically arise. I assume hereafter that such sequences would have already been ruled out at either the level of semantic representation/deep structure, or by the transformational component. They are obviously not a matter intended to be treated by a SSC.

However, the ungrammaticality of (b) and (d) is due to the relative order of the clitics, since the corresponding (a) and (c) examples are grammatical. Thus, the surface constraint on the relative order of particle clitics is, tentatively, as in (14):

$$(14) \qquad xo^{10} \qquad \begin{matrix} ba^{10} \\ de \ (\text{MOD}) \end{matrix}$$

Now let us look at the ordering of the pronominal de "you" relative to these particle clitics. That is, while the sequences of ba + de (MODAL) logically or semantically cannot arise a sequence of ba + de (PRONOUN) may arise. Consider (15), in which the pronominal de occurs with two of the particle clitics, ba and xo.

(15) a.   tor   ba   de   wuwini   Tor will see you.
       Tor will   you   see

     b. *tor   de   ba   wuwini

     c.   tor   xo   de   pezani   Tor indeed knows you.
       Tor indeed you   knows

     d. *tor   de   xo   pezani

The grammaticality of (15)(a) and (c), and the ungrammaticality of (b) and (d), reveals that the SSC on the order of xo and ba with pronominal de is that given in (16)

$$(16) \qquad \begin{matrix} xo \\ ba \end{matrix} \qquad de \ (\text{PRO})$$

Combining (14) and (16), we get (17) and (18):

$$(17) \qquad xo \qquad de \begin{matrix} (\text{PRO}) \\ (\text{MOD}) \end{matrix}$$

$$(18) \qquad xo \quad ba \quad de \ (\text{PRO})$$

So far the order of the pronominal clitics relative to each other and the order of the particle clitics relative to each other has been formulated; the order of the second person pronominal clitic de has also been established. Let us turn next to the question of what the relative order of the other pronominal clitics to the particle clitics is. Consider (20) and (21), which contain one particle clitic and one pronominal clitic.

(20) a.   wror   xo   me   rА́gay   My brother indeed came.
       brother indeed my   came

     b.   wror   xo   -y   rА́gay   His brother indeed came.

     c.   wror   xo   -m/mo   rА́gay   Our brother indeed came. (or)
                        Your brother indeed came.

> d. wror   ba   me   rAsi   My brother will come.
>   brother will   my   come
>
> e. wror   ba   -y   rAsi   His brother will come.
>
> f. wror   ba -m/mo rAsi   Our brother will come. (or)
>   Your brother will come.

> (21)a. wror   me   de   rAsi   My brother should come.
>   brother my should come
>
> b. wror   de   -y   rAsi   His brother should come.
>
> c. wror -am/mo   de   rAsi   Our brother should come. (or)
>   Your brother should come.

Since switching of the order of any of the clitics in (20) and (21)
will render all of the sentences ungrammatical, the relative order of
the particle clitics with the pronoun clitics in (20) and (21) can be
established as in (22) and (23) respectively:

> (22)
> $$\left\{ \begin{array}{l} \text{xo} \\ \text{ba} \end{array} \right\} \qquad \left\{ \begin{array}{ll} \text{1sg} & \text{(me)} \\ 3 & \text{(ye)} \\ \text{1/2pl} & \text{(am/mo)} \end{array} \right\}$$

> (23)   1sg   de (MOD)   3

Since the relative order of xo, ba, and de has already been established,
in (19), we can rewrite (22) as (24):

> (24)
> $$\text{xo} \qquad \text{ba} \qquad \left\{ \begin{array}{ll} \text{1sg} & \text{(me)} \\ 3 & \text{(ye)} \\ \text{1/2pl} & \text{(am/mo)} \\ \text{2sg} & \text{(de)} \end{array} \right\}$$

A look at (23) reveals that modal de occurs in the same slot
relative to 1sg and 3 as did pronominal de in (12). That is, modal
de occurs between the two pronoun clitics 1sg and 3, as in (23): it
comes in exactly the same slot where its phonological twin, pronominal
clitic de occurs. (This matter will be discussed further below.)
Making this observation, we can revise (12) as (25).

> (25)   1/2pl   1/2pl   1sg   de $\begin{array}{l}\text{(MOD)}\\\text{(PRO)}\end{array}$ 3

Finally, by superimposing (24) and (25), we get (26). The surface
structure constraint on the relative order of Pashto clitics is as
in (26).

> (26)   1   2   3   4   5   6   7
>   xo   ba   1/2pl 1/2pl 1sg $\left\{ \begin{array}{l} \text{2sg-de} \\ \text{modal-de} \end{array} \right\}$ 3

This is the final result, except that some revisions will later be seen to be needed to provide for recognition of the role of the phonological shape of the clitics (in slots 3, 4, and 6).

2.2 Phonology and the Basis and Formulation of the SSC

There are several indications that firstly part of the basis for the SSC is the phonological shape of certain items, and that secondly the SSC must be formulated in certain instances using phonological items. This sub-section will examine various evidence relative to these two matters. The former point--that part of the basis for the SSC may be in part the phonological shape of the items--has, to my knowledge been largely unexamined.[11] The latter point--that at some points the SSC must be formulated using phonological items--fits more or less within Perlmutter's statement that the SSC applies at a stage of derivation where the morphemes have been assigned phonological shape (1971: 88). In addition, in the course of this section an instance will come up (not directly related to phonology) which seems to indicate that a single positive notation is not adequate for a statement of the situation in Pashto.

Relative to the question of the basis of the SSC, as was mentioned in the introduction, in Pashto there are some sequences of clitics whose ungrammaticality can be explained only as being due to their identical phonological shape and not to a constraint on their relative order as was the instance with the items in section 2.1.

Consider the items in (27), all ungrammatical, each of which contains a possessive clitic and a personal pronominal clitic in the same person.

(27) a. *wror   me me wahi   My brother is hitting me.
         brother 1sg 1sg hits

     b. *wror   de de wahi   Your brother is hitting you.

     c. *wror   ye ye wahi   His brother is hitting him.

     d. *wror   am am wahi   Our brother is hitting us. (or)

     d'. *wror   mo mo wahi   Our brother is hitting you. (or)
                                        Your brother is hitting you. (or)
                                        Your brother is hitting us.

Such sequences are transformationally and semantically possible as is
evident from the parallel items in (28) which utilize one strong pronoun
and one clitic rather than two clitics.

(28) a. wror mé mA   wahi'   My brother is hitting me.

    b. wror de tA   wahi   Your brother is hitting you.

    c. wror ye day wahi   His brother is hitting him.

    d. wror am munq wahi   Our brother is hitting us.   (or)
                              Your brother is hitting us.
    d'. wror ma nunq wahi   Our brother is hitting us.   (or)
                              Your brother is hitting us.

Item (29), moreover, indicates that the problematic items may arise in
other contexts with clitics.

(29) a. wror me de wahi   My brother is hitting you.   (or)
                              Your brother is hitting me.

    b. wror me ye wahi   My brother is hitting him.   (or)
                              His brother is hitting me.

    c. wror de ye wahi   Your brother is hitting him.
                              His brother is hitting you.

    d. wror am ye wahi   Our brother is hitting him.   (or)
                              Your brother is hitting him.
    d'. wror mo ye wahi   Our brother is hitting him.   (or)
                              Your brother is hitting him.

That is, items (28) and (29) establish that both transformationally and
semantically it is possible for the sequences of clitics in (27) to
arise. Since, however, sentences with such sequences are always
ungrammatical, we assume that this is a matter for the SSC.

However, the reason for the ungrammaticality of the items in (27)
is clearly different from that for the ungrammatical sequences in
section 2.1. That is, the ungrammaticality of (27) cannot be due to
the items being out of order relative to one another as was the
situation for the non-identical pairs previously, because here the
members of each pair are identical and switching their order has no
consequence. The SSC as formulated does of course correctly predict
or describe their ungrammaticalness, since it rules out the occurrence
of a sequence of any clitics assigned to the same column in the SSC.
But the further question arises of why the SSC rules out such sequences,
of why such like-items must be "assigned to the same column" in the SSC
regardless of source.

A proposal to explain the ungrammaticalness of items like (27) might be that the two pronouns are in the "same person". This, we find, does not hold. First, a "same person" explanation would be possible only for items like those in (27) where both clitics are pronouns. It could not explain an item like (30a), which is also ungrammatical, even though it is semantically and transformationally possible, as the parallel (30b) with a strong pronoun instead of the clitic de pronoun reveals.

(30)a. *tor de de wuwahi   Tor should hit you.

   b. tor de tʌ wuwahi   Tor should hit you.
       Tor should you hit

In (30a) one of the de's is the modal "should" and the other de is the pronominal "you". Not only are these two de's not in the same person, but they are not even both pronouns! Secondly, there are some sequences of clitics in the same person which are grammatical, as in (31):

(31)a. motara mam   rʌwostə   We brought our car.
   b. motaram mo   rʌwostə   We brought your car.
                                You brought your car.
                                You brought our car.

The fact that a "same person" explanation fails on two counts to explain the ungrammaticalness of the like-element sequences suggests that their identical phonological shape may be the cause. In the de de instance in (30a), it would appear that speakers "put" the modal de "in the same column" as the pronominal de precisely because of its phonological identity with pronominal de. This view is further supported by the observation that the other modal clitic, ba, precedes all the pronominal clitics; but the modal de occurs after a pronominal, me, and in precisely the same place as its phonological twin, pronominal de, occurs.

This view that phonological shape is indeed the relevant factor to explain the ungrammaticalness of the like-element sequences is further supported by the fact that grammatical items like (31) can be rendered ungrammatical by changing the clitics to alternate forms so as to yield like-element sequences, as in (32).

(32)a. *motar am am   rAwostə

    b. *motar mo mo   rAwostə

The generalization would indeed seem to he that no sequence of two
phonologically identical clitic elements is permissible in Pashto,
even though transformationally and semantically possible. All[12] such
sequences are ungrammatical:

(33)a. *me   me

    b. *de   de

    c. *ye   ye

    d. *am   am

    e. *mo   mo

Thus, it would seem that at least part of the basis for the columns
in the SSC is the phonological shape of the clitics.

Relative to the second point--the question of the formulation of the
SSC--data like (30) and (32) indicate, moreover, that the SSC, a
presumably syntactic device (Perlmutter 1971:4), has to be stated
in terms of the phonological shape of some of the items. First, the
only similarity between the two de's which serves as the basis for
their assignment to the same column is their phonological shape, and
the SSC must recognize this by entering "de" and not "2nd sg" and
"modal-de" in its sixth slot. This would give us (34) rather than (26).

(34)

1	2	3	4	5	6	7
xo^{10}	ba^{10}	1/2pl	1/2pl	1sg	de	3

Second, there is another inaccuracy in the formulation of the SSC
as in (26) or even (34), again apparantly due to a failure to adequately
recognize that the phonological shape of the clitics is relevant.
That is, (34) incorrectly predicts that (b) and (d), as well as (a)
and (c) would be grammatical in (35):

'35)a. kit?bam   mo   rAwor̈ə   We brought our book.

   b. *kitAb mo am   rAwor̈ə   We brought your book.
                                  You brought your book.

   c. kitAbamam   rAwor̈ə   You brought our book.

   d. *kitAb mo mo   rAwor̈ə

To capture the fact that (b) and (d) are ungrammatical (whatever the
style or dialect), again, the morpheme shapes themselves must be

entered in the SSC. This gives us as close to a correct formulation
of the SSC as is possible in a single positive statement:

(36)

1	2	3	4	5	6	7
xo^{10}	ba^{10}	am	am / mo	1sg	de	3

In the formulation of the SSC as in (36), however, there is still a
problem (not directly related to phonological considerations) which
apparently cannot be handled within the framework proposed by
Perlmutter--i.e. by a single positive statement. This problem arises
relative to the portion of the SSC treating the sequence am am/mo.

Since this problem comes up only in the written style or western
dialect, let me separate out the relevant portion of the SSC:

(37)

1	2	3	4	5	6	7
xo^{10}	ba^{10}	am	mo	1sg	de	3

The problem is that if only one 1/2pl clitic item appears in a
sentence it is always mo and never am. That is, the item from column 4
and not from column 3 must be selected. The use of am is permitted
only when there is one other 1/2pl clitic (i.e. mo) present. Thus, in
this dialect we cannot get

(38) a. *kitAbam

          *turam

but only

      b. kitAb mo

          tura mo

Yet, as we have seen, "am mo" must be entered in the SSC to correctly
account for items like(35) above. It would seem that a single positive
statement such as (37) does not work. The simplest, least drastic
modification of the "single positive statement" hypothesis would be to
keep the positive statement, but add a Condition[13] to the effect that
in this dialect if only one item from columns 3 and 4 occurs, it must
be the item from column 4--i.e. mo.

      (39) Condition on (37): If only one item occurs from columns
            3 and 4, it must be the item from column 4 (i.e.--if only
            one 1/2pl item occurs, it must be mo.)

Thus, the single positive SSC alone, as in (37), is not adequate to account for the data in the written/formal style or western dialect of Pashto.

Interestingly, the necessity that the sequence must be an mo when there are two 1/2pl items in this style/dialect brings up another indication that the phonological shape of the items may be part of the basis for the SSC. As mentioned earlier, in this style/dialect, mo is always used when there is no other 1/2pl clitic in the sentence, as (38) indicated. However, if there are two 1/2pl clitic items, the first must be am (and the second mo):

    (40)a. kitAbam   mo   wAxistə

       b. 'turam   mo   wAxistə

The interesting point is that in this dialect an appears only when there is a sequence of 1/2pl 1/2pl clitics, and that otherwise mo is obligatory. This observation strongly suggests that the am is used here to avoid getting a like-element sequence. This thus adds a bit more support to the view that sequences of phonologically identical clitics are impermissible.

That observation relative to the sequence of am mo in the western dialect also suggests that probably the reason that the sequence am am is permitted in the eastern dialect is also due to the (final) phonological shape of the items. That is, the am am sequence is actually pronounced as a mam (due to a general syllabification rule) and not as am am: it is not pronounced as a sequence of like elements! [14]

In this section (2.2), we have seen two things. First, at certain points the SSC must be formulated on the basis of the phonological shape of the clitics. And secondly, it appears that the basis, the why behind the SSC may be partly the phonological shape of the clitics. That is, while some sequences, as in section 2.1, are ruled out because of a relative ordering requirement, some other sequences are in all likelihood ruled out because of their identical phonological shape.

2.3 Phonology and Out-of-Order Clitics

There is another set of data which indicates that the SSC may be sensitive to the phonological shape of the clitics. These are some interesting instances[15] where the SSC is violated but the sequence is grammatical. What is interesting is that the sequence is accepted only if some phonological process has applied to the out-of-order clitic such that it has been contracted or incorporated into the phonological structure of the host word. Items (42) through (44) illustrate instances of contractions.

(41)a. dA   xo ye wǝlida   <u>He</u> really saw her.

   b. *dA   ye xo   wƏlida   _

(42)a. tǝ   xo ye wǝliđe   <u>He</u> really saw you.

   b. *tǝ   ye xo   wƏlide

   c. t<u>e</u>   xo   wƏlide

(43)a. zǝ   xo ye nǝlidƟm   He really wasn't seeing me.

   b. *zǝ   ye xo   nǝlidǝm

   c. z<u>e</u>   xo   nǝlidǝm

(44)a. xǝza   xo ye wǝlida   <u>He</u> really saw the woman.

   b. *xǝza ye xo   wǝlida

   c. xǝza<u>y</u> xo   wǝlida

The (a) items represent the version that does conform to the SSC. The (b) items with the clitic <u>ye</u> simply out of order are ungrammatical. The (c) items are possible because in (42) and (43) a rule of clitic Reduction   and in (44) a rule of Glide Formation have applied to incorporate the clitic <u>ye</u> into the first segment.

   Similarly, in (c) items in (45) and (46) below are grammatical even though a clitic is out of order because the clitics <u>am</u> and <u>ye</u> have been incorporated into the phonological structure of the host word. This incorporation is here due to a general syllabification rule which says roughly 'Divide after a vowel before a (single) consonant'. The (d) items are those which do conform to the SSC.

(45) a. *kitAb me xo wAxistə   I really took the book
         book I really took

b. *kitAb am xo wAxistə   We really took the book.

c. kitA-bam xo wAxistə

d. kitAb   xom wAxistə

(46) a. *kitAb de xo wAxistə   You really took the book.

b. *kitAb ye xo wAxistə   He really took the book.

c. kitA-bè xo wAxistə

d. kitAb   xo ye wAxistə

The only difference between the (b) and the (c) items in both (45)
and (46) and in (42) through (44) is their phonological shape.

This data is of crucial importance for the theory of SSCs because,
as Perlmutter put it (relative to French and Spanish in that case),
the "existence of any grammatical sentences in Spanish or French with
clitic sequences which (SSC)-86 or (SSC)-121 would filter out would
constitute counterevidence to the theory developed here." (1971:61)
The (c) items above do represent grammatical sequences which would
be filtered out by Pashto's SSC-36. Thus, this data suggests that
there may be an inadequacy in the theory of SSCs as developed to date.
There are at least two ways to look at the situation exemplified by
these data; each poses a (different) problem for the SSC theory.

One might want to say that there is some sort of flip rule
which applies after the SSC has applied, exchanging the order of
certain clitics. This proposal has certain difficulties. First,
such a rule would have to be more complicated than a simple "flip"
and would have to be more like an actual reordering transformation,[16]
because sometimes the clitic in question would not originally be
adjacent to the xo. Consider (47). The proposal would say that
after the SSC has applied to accept (a), a reordering rule applies to
convert (a) to (b).

(47) a. tə xo ba ye pezane   You indeed must know him.

b. te xo ba   pezane

Notice that ye would have to be moved around both xo and ba. It
seems that a simple "flip" won't work here. A somewhat more complicated
reordering rule would be necessary. With that revision, then, the

proposal would claim that the SSC must apply at some level <u>prior</u>
to the surface level since a reordering rule applies after it.
It would mean a modification of the surface structure constraint
theory such that a SSC would really be a 'shallow structure
constraint'[17].

However, there are difficulties even with this revised proposal.
First of all, I can't see any other evidence in the language to
motivate such a reordering rule. Secondly, it is painfully apparent
that such a 'reordering rule' would be applicable only if some phono-
logical rule could incorporate the clitic later.[18] That is,
non-incorporable clitics may <u>not</u> undergo the postulated reordering
rule:

    (48)a. zə   xo <u>de</u> pezane   I indeed know <u>you</u>.

       bb. *zə <u>de</u> xo   pezane

    (49)c. tə   xo <u>me</u> pezane   You indeed know <u>me</u>.

       d. *tə <u>me</u> xo   pezane

Moreover, and more importantly, the two phonological rules in question
are elsewhere <u>variable</u> rules: 'Reduction', the rule contracting the
clitic <u>ye</u> after a Cə, and 'Glide Formation', the rule causing <u>ye</u> to
appear as -/y/ on the end of vowel-final words, are <u>not</u> ordinarily
obligatory. In slow speech or at the speakers choice, they may not
apply and the results are still grammatical, as (50) and (51) illustrate:

   (50
     a. tə <u>ye</u> pezane   You know <u>him</u>.

     b. <u>te</u>   pezane

    (51)a. xəza <u>ye</u> pezane   You know <u>his</u> wife.

     b. <u>xəzay</u>   pezane

Both the uncontracted (a) versions and the contracted (b) versions are
grammatical. But in the instances under discussion here with a clitic
out of order before <u>xo</u> as in the (c) instances in (42) through (44), the
rule is obligatory; the <u>unincorporated</u> (b) versions were ungrammatical.
The relevant items are repeated below for convenience:

   (42)b. *tə <u>ye</u> xo   wəlide   <u>He</u> really saw you.

     c. <u>te</u>   xo   wəlide

    (43)b. *zə <u>ye</u> xo   nəlidəm   <u>He</u> really wasn't seeing me.

     c. <u>ze</u>   xo   nəlidəm

(44)b. *xəza ye xo   wəlida   He really saw the woman.

c.   xəzay   xo   wəlida .

Only when the out-of-order clitic item is incorporated is the sentence
grammatical, even though elsewhere the incorporation rule is not an
obligatory one.

The points above strongly suggest that a reordering rule, applying
after the SSC, is probably not the correct solution. It is clear that
the out-of-order clitics are acceptable only if, and probably because,
they are phonologically incorporated into the host word. This suggests
the other possible way to look at the data: The SSC must apply at some
stage after certain phonological rules have applied. The SSC would
not apply at the level of surface structure; it would apply at a
stage later than surface structure.[19]

But regardless of which approach is taken, such data does present
a serious problem[20] for the SSC notation and theory as conceived to
date. Certainly there is a very strong indication of an intimate
interaction between phonology and the syntactic devices necessary to
account for clitic orders.

The three parts of Section 2 have attempted to establish the SSC
for the relative order of clitics in Pashto, and have indicated
that phonology and the SSC interact in certain crucial ways.

3. Inadequacy of 'Fixed-Morpheme-Order-in-a-Word' as an Explanation for Constraints on Clitic Orders in Pashto

Perlmutter has suggested that a possible explanation for the surface
structure constraints on clitics, for why clitics should "be universally
subject to surface structure constraints", may derive from the fact that
"clitics form a single phonological word with the word they attach to".
Drawing on Postal's observation that the morphemes of a word cohere
and may not be reordered, he applies it to clitic orders as a subset:
"Since clitics form a single word with the word on which they lean,
the fact that their relative order is fixed may be but a special case
of the fixed order of morphemes within the word." (1971:65)

In this section, I will present certain evidence from Pashto that indicates that the order of clitics is not simply a subset of the fixed order of morphemes in a word. It will be seen that the clitics do not necessarily form a phonological word with their host. I will present evidence that the degree of cohesiveness between morphemes in a word and that between clitics or clitics and their host are not simple equivalents in Pashto. And finally, unlike the order of morphemes in a word, whose order is fixed, the order of clitics in Pashto is in some instances not totally fixed, either in relation to the other clitics or in relation to the morphemes within the host word. Thus, the "subset of the fixed order of morphemes in a word" hypothesis will be shown to be questionable as an explanation for clitic orders.

Before covering these points, however, I want to point out some difficulties even with a point that Perlmutter takes for granted, probably because of the languages available to him--i.e. that the host is a word. Although not a major point, it does seem worth noting since if the host itself is not a word, it becomes less likely that the host-plus-clitic could be a (phonological) word. Let us examine this "host as word" assumption. There are certain indications in Pashto that the segment after which the clitics are positioned[21] is not always characterizable as a word. That segment may be a word, a "phonological" word, a morpheme within a word, a non-morphemic sound within a word, an immediate constituent of VP[22], or an immediate constituent of S, which latter two may be several words long.[23]

Consider first (52) and (53) where the clitics me and ba respectively have been positioned after long immediate constituents of S. It would seem clear that a long constituent like "de kAbʉl de pohantun lə rayis, mAwEnAno, šAgʉrdAno, mAmurino aw mustaxdimino na" cannot be considered a word!

(52)　de kAbəl de pohantun　lə　rayis,　　mAwEnAno,
　　　　of Kabul of university from　president,　assistants,

　　　šAgʉrdAno,　mAmurino　aw　mustaxdimino　na　me
　　　students,　officials and　employees　(from) I

　　　puxtəne　wəkre
　　　questions　asked

　　"I asked questions of (from) the president, the assistants,

the students, officials, and employees of the University of
Kabul."

(53) aǧa jega pə zrə pore sra aw xaysta mAnəy ba
     that tall interesting red and pretty building must

        de tor wi
        of Tor be

"That tall interesting red and pretty building must be
owned by Tor."

Moreover, in such cases, it is clear that the host is the total
constituent and not merely the last word in the constituent. We
know this from the nature of the Clitic Placement Rule--i.e. that a
clitic cannot be placed after a segment not containing a stress
(see Section 4), and from the fact that there exist sentences where
the word immediately preceding the clitic is unstressed. Item (54)
illustrates:

(54)a. tór sǎrǎ ba rasi   (He) will come with Tor.
        Tor-with will come

     b. *wə̌r sǎrǎ ba rási   (He) will come with him.

     c. wə̌r sǎrǎ rá-ba -si

That is sǎrǎ in (a) is stressless, but the clitic ba still appears
after it; this is clearly because tór, part of the same constituent as
sǎrǎ, bears stress--as can be seen from the ungrammaticality of (b),
where ba immediately following unstressed elements is ungrammatical.
Here, then, the clitic becomes a part not of a single word sǎrǎ, but
apparently of the whole postpositional phrase constituent tór sǎrǎ.

Other similar data suggests further that a distinction (not made
by Perlmutter) between "position adjacent to" and "attach" is not
really available as an 'out' to save the host-as-word assumption.
To save it, one might try to say that the clitic is "positioned after"
the full postpositional phrase constituent, but is "attached" only to
the last word--i.e. na in (55):

(55)a. di mA lə xwA   na ba həm salAm wər ta wuwAye
        of me from side (from) will also hello him-to say

        "Say hello to him from me (from my side) also.

The problem with such a proposal is that lə and na together form a word
both syntactically and phonologically, since the deletion of lə results

in an ungrammatical sentence:

(55)b. *de mA ∅ xwa na ba həm salAm wər ta wuwAyₑ

Since lᵤ and na together form a word, saying that ba attaches to na alone also contradicts the host as word hypothesis.

Thus, regardless of which approach one takes, the host cannot be considered as a word in such examples. The item after which the clitic is placed is not a word, but a phrase or an immediate constituent of S.

3ut there is a further difficulty. In some sentences the segment the clitic is positioned after is smaller than a word, such as a prefix or a phonological segment behaving like a prefix.[24] In (56) the segment the clitics are put after is a prefix of the verb kenAwθ.

(56) ké-ba-me -nawə   I would make (him)sit down.
In no sense can ké- be considered a word synchronically. Yet, as Section 4 will show, clitics are in fact positioned after ke- in such sentences. [This can be seen in brief by looking at (57), in which ba me are positioned after the verb if ke- is unstressed, making it clear that in (56) the clitics were positioned after ké- because it was stressed there:

(57) kenawə́-ba-me]

From the above, it appears that the item after which the clitic is placed cannot always be considered a "word" in any simple or direct way.

Perlmutter does at one point use the term "constituent" rather than "word" to describe the host. He probably actually intended it merely as a synonym for "word", but let us see whether the host may be adequately' described as a "constituent" since there were the above difficulties in considering it a "word." Items like (52) through (55) above do illustrate instances where the clitic occurs after or leans on a " "constituent", often a node dominated by S, or sometimes perhaps by VP.[22] For an item like (56), if we accept "constituent" in include as low a level constituent as a constituent of a word, we can also get by. That is, in (56), ké-, after which the clitic is positioned, is a morpheme of the word kenaᵕ-ə and thus is a "constituent of a word".

However, there is a difficulty even with the "host as constituent"
version if the usual interpretation of "constituent" is utilized.
That is, in some instances in Pashto, the clitic is positioned after
a segment which is <u>not even a morpheme</u>. Most linguists would not want
to call such a segment a "constituent."

(58)a. á-<u>de</u> -xistə (verb is axistə: ax - ist - ə
                                    root -past -ending)

   b. pÁ-<u>de</u> -cAwə (verb is pAcAwə: pAc - aw - ə
                                    root-causative - ending)

The segments /a/- and /pA/- are not identifiable morphemes,[25] and as such
would not normally be accepted as "constituents".

   Thus it seems that the item upon which the clitic leans cannot
always be characterized as either a "word" or a "constituent" in any
usual sense. Both the 'host as word' and the 'host as constituent'
assumptions seem somewhat unclear given the data in Pashto.

   Now let us examine the more important part of the above quoted
suggestion that the clitics form "a single phonological word with
the word on which they lean". Let us call this the 'host plus clitics
as word' hypothesis. The data in Pashto indicates that there are
serious problems with it as well.

   First, consider items like (52) and (53) given previously, and
repeated below for convenience, where the clitic is positioned after
a long immediate constituent of S.

(52) de KAbəl de pohantun   lə   rayis,   mAwEnano,
      of Kabul of university from president, assistants,

           šAgərdAno, mAmurino aw   mustaxdimino na <u>me</u>
           students,   officials and employees   (from) I

           puxtəne   wəkre
           questions asked

      "I asked questions of (from) the president, the assistants,
      the students, officials, and employees of the University of
      Kabul."

(53) aǧa jega pə zrə pore sra aw xaysta mAnəy <u>ba</u> de tor wi
      that tall interesting red and .pretty building must of Tor be
      "That tall interesting red and pretty building must be
      owned by Tor."

Clearly "aǧa jega pə zrə pore sra aw xaysta mAnəy" is not a word.
And it seems highly unlikely that "aǧa jega pə zrə pore sra aw xaysta
mAnəy +ba" could be considered a word either, even a "phonological"
word--there would be no difference between a "phonological" word
and a "phonemic clause".   The constituent in (52) plus the clitic me
is even less likely to be a "phonological word".   We have already
demonstrated above that one cannot really get out of this difficulty
by claiming that the clitic is "positioned" next to the total
constituent, but is "attached to" only the last word. But, even if
one tried, it is clear that something like na-me consisting of two
weak stressed elements would in no sense be considered a phonological
word.

Thirdly, there are instances where the clitics plus the segment
after which they are placed cannot, alone, constitute a word in any
sense; rather they are part of some larger word. Consider (59) below

The verb is kenAwə. Because the prefix ke- is stressed, Clitic
Placement puts the clitics ba and me after it. However, it is
impossible to claim that ke-ba me is a word because ke- itself is
clearly part of the verb, a word, kenAwə.

  (59) ke-ba-me -nAwə
Thus the hypothesis that the clitics plus the item after which they
are positioned form a single word seems inaccurate. The situation
with (59) is clearly (60) and not (61):

(60)   WORD
       ┌─────────────────────────────┐
       │ ┌──────────┐   │
       │ │ ke ba me │   nAwə   │
       │ └──────────┘   │
       └─────────────────────────────┘

(61)   WORD   ?
        ┌──────────┐   ┌──────────┐
        │ ke ba me │   │ nAwə   │
        └──────────┘   └──────────┘

There would be two ways to look at this data. One might try to
say that the clitics plus the item after which they are positioned
make a "constituent" rather than a "word", since in examples like
(53) and (54) previously that seemed plausible; the "constituent"
would here, of course, have to be a constituent of a word rather than
a syntactic constituent however. That could account for items like (59).

But it could not easily account for items like (62):

    (62)a. á-me -xistə

       b. pÁ-me -cawə

As we saw before, in items like (62), the segment after which the
clitics are positioned is not a morpheme and therefore not itself a
"constituent" in the usual sense of the term; the best that can be
said of á-me or pÁ-me is that they are phonological units.

    Or, alternatively, one might say that for items like both (59)
and (62) the total word, and not just the portion after which the
clitic is positioned, is the 'host': Since the /a/- is itself part
of the total word axistə, it is clear that me does become part of the
total word; that is, in some sense, the total word axistə is the
host since one part of it is the item to which the clitic attaches.
Similarly with ké-ba me nawə, where in being positioned after the
prefix ké-, the ba me become in turn part of the total word kénAwə.
It seems that such items must be characterized as instances of
infixation, the total word being the 'host'. In these instances,
then, the host plus clitic would make a "phonological word".
[We will see later, however, that if me is considered an infix in
á me xistə, it poses a crucial difficulty for Perlmutter's 'fixed order
of morphemes in a word' hypothesis for explaining clitic order.
See item (66) and footnote 28.]

    It remains clear, however, that even if 'infixation' can in these
instances be used to characterize the host plus clitics as a
"phonological word", in the instances presented earlier in this
section like (52) and (53), the long constituents plus the clitics
cannot be characterized as phonological words. The 'host plus
clitics as phonological word' hypothesis remains in question.

    Now let us examine another point which bears on the hypothesis
that clitics and morphemes in a word are similar phenomena. There
is evidence in Pashto that the degree of cohesiveness between the
morphemes of a word and that between clitics, or between clitics
and their host, are not totally or simply equivalent.[26]

It seems that in Pashto the attachment of the clitics, when once
they have come into their order relative to each other and to their
host segment, is more cohesive than the attachment of some morphemes
to each other within the same word. That is, it is possible to
insert certain items such as the negative particle, which is not a
clitic, between the prefix and the stem of the verb, a word; but it
is impossible for any segment ever to be inserted either between the
clitics and the segment they are placed after, or between the
different clitic items in a sequence. Item (63) illustrates.
Sentences (b) and (c) are grammatical in spite of the fact that the
negative particle nə has been inserted between the prefix and the
stem of such verbs as pre-wot- and ke-nAst-.

(63)a. tor   pre-wot -ʉ   Tor lay down.
        Tor   PREF-STEM-ENDING

    b. tor   pre- nə -wotə   Tor did not lie down.

    c. tor   ke- nə -nAstə   Tor did not sit down.

However, in (64), the occurrence of any non-clitic element such as
nə between the clitics and the preceding host, or between different
clitics in a sequence, would render the sentences ungrammatical.

(64)a. tor   me   wʋlidə   I saw Tor.

    b. wror   ba me de wuguri My brother will see you.
        brother will my you see

Moreover, in some instances the negative particle is inserted
into a verb where the 'prefix' or segment they are inserted after is
not a productive prefix or morpheme synchronically at all. An
example is (65):

(65)   pA- nə -cedə   (He) did not get up.

In this instance, the segments /pA/- and -/c/- have apparently been
analyzed by speakers as the prefix and the root respectively of the
verb pAc- as far as the insertion of the negative goes (-ed- is an
intransitive affix).   However, neither segment is a synchronically
productive morpheme: neither carries separate meaning and neither
is used as a prefix or root elsewhere in the language. Thus, the
verb stem pAc-, even though it doesn't consist of any identifiable
morphemes, is divisible--something can intervene between /pA/ and

and /c/--indicating that the cohesion between elements of such a
word is not terribly strong. Recall, again, that with clitics
nothing could enter in between them and their host, indicating a
strong degree of cohesion.

From the above observations, it seems that, once the clitics
have come into their fixed order, the attachment of the clitics to
each other and to the segment after which they are placed is more
cohesive than the attachment of a prefix or prefix-like segment to
the stem of its verb! This alone suggests that the idea that clitics
cohere as do the morphemes of a word is too simple.[27]

Finally, let us look at a third point. There is evidence that,
even if we put aside the other problems, the "fixed order of morphemes
in a word" and the situation with clitics are not parallel. There
are data in Pashto which may perhaps constitute a direct counter-
example to the hypothesis, indicating that the "fixed order of
morphemes in a word" principle is not the principle governing clitics.

Perlmutter says that "if there are two words which contain the
same morphemes but in a different order, then the underlying
representations of the two are distinct." (1971:65) As already noted
above, he proposes that "since clitics form a single word with the
word on which they lean, the fact that their relative order is fixed
may be but a special case of the fixed order of morphemes in a
word." (1971:65) Presumably the "distinct underlying representations"
statement should also be applicable to the host-plus-clitics sequences,
if they are indeed "words". Item (66) (a) and (b) show that such a
formulation cannot be right: they consist of the "same morphemes",
they are in "different orders", but they mean the same thing--i.e.
there is no reason to suppose their underlying representations would
be distinct.

(66) a. á-ye -xistə   He was buying it.
     b. axistə́-ye   He was buying it.

The clitic ye appears in two different locations--its order in relation
to the morpheme axistə is not fixed--even though the meaning is the
same.[28] (This difference arises due to the fact that Clitic Placement
is governed by stress--see Section 4; however, in this instance, stress

is not morphemic.)   The proposal that clitic plus host orders are
a subset of 'morphemes within the word' orderings is called into
serious question.

More telling examples are pairs like the following, however.
These are more damaging to the hypothesis that clitic ordering is a
subset of the fixed orders of morphemes in a word because, no matter
what the interpretation, they seem to be direct counter-examples.
The host element is a single, one-syllable word consisting of one
morpheme, and the two versions are clearly instances where host
plus clitics, and two clitics, can appear in different orders--i.e.
where the same morphemes appear in different orders. That is, if the
boxed items are supposed to be "words", how is it that, although
identical in meaning, the morphemes can appear in two different
orders?

(67)a. | zə̌   xo   ye | wəlidəm

        | zé̱   xo | wəlidəm   <-- *zə̌ ye xo wəlidəm

(68)a. | kőr   xom̱ | wAxistə

     b. | kő-ram xo | wAxistə

These seem to be direct counter-examples to the "fixed order of
morphemes in a word" principle as an explanation for clitics in
that here clitics appear in two orders but with the same meaning.[29]

From the three major points above, it appears that perhaps there
may be something right about a'host plus clitics as constituent' view,
but that a 'host plus clitics as phonological word' hypothesis, as
well as a 'host as word' assumption are in question. More importantly,
it appears that the principle behind clitic orderings is not the same
principle as that which prescribes the fixed order of morphemes
within the word. The clitic orders do not seem to be "a special
case of the fixed order of morphemes within the word" in any simple
way.

4.Clitic Placement

Now that we have completed looking at various aspects of the
Surface Structure Constraint on clitic order, let us examine the
transformational rule of Clitic Placement, which situates the clitics
as a group in the total sentence. That is, regardless of what position
in the sentence the clitics originate in, they end up all together in
a single bloc in the sentence. How is that location determined?

It will be seen that the answer to this question reveals an
especially interesting instance of an interdependency of phonological
and syntactic factors--an interaction   between Clitic Placement
and stress. This interaction has much potential importance for
linguistic theory since, to my knowledge, it represents the first
really clear evidence in linguistic literature that a late syntactic
rule operates by taking into account certain phonological characteristics
of the sentence.

The data in (69) illustrates that clitics (underlined items) can
occur in various positions in the sentence.[30]

(69)a. aǧa šəl kaləna danga aw xaysta péǧla me nən   byA wəlida
        that 20-year tall and pretty girl I today again saw

        "I saw that 20-year old tall and pretty girl again today."

    b. wrór   ba   de ye telwAhə
       brother would your he push

       "He would push your brother."

    c. ţel-   ba   ye ţ-wAhə
       ½push would he ½push

       "He would push him."

    d. telwAhə   ba   ye
       push   would   he

       "He would be pushing him."

  · e. tór ta . ba ye rAwri
       Tor to will he bring

       "He will bring it to Tor."

    f. wər ta   rA-   ye   -wri
       him-to ½bring   he ½bring

       "He will bring it to him."

g. dər sara wi de
   you with be can

   "(It) can be with you." i.e., "You can keep (it)."

h. dər sará de wi
   you with can be

   "(It) can be with you." i.e. "You can keep (it)."

i. axistə ba ye
   buy will he

   "He would be buying (it)."

j. a- ba ye -xistə
   ½buy would he ½buy

   "He would be buying it."

In (69), in (b), the clitics occur after the first word. In (a), the
clitic comes after a long noun phrase, the first constituent of S.
In (c) and (f) the clitics occur between the prefix and the verb root.
In (j), the clitics occur after the first vowel of the verb. In (d)
and (g), they come in post-verbal position. In (e) and (h), they come
after a post-positional phrase. But in (f) and (g), they do not
immediately follow the post-positional phrase.

Looked at without reference to stress, this situation would appear
quite chaotic. However, when stress is taken into consideration, a
pattern begins to emerge. It looks surprisingly like the clitics
always follow the first constituent or segment in which at least one
element bears stress.[31] In fact, it will be seen that no other
formulation can adequately state what the effects of Clitic
Placement are.

Let us look first at instances similar to (69)(c) and (d) where
nothing precedes the verb and where the clitics occur in mid- or
post-verbal position. In such sentences, the clitics occur after the
(first) stressed segment. For example in (70)(b), where the stress
is on the verbal prefix rA-, the clitics enter the verb following the
prefix. But in (71)(b), where the stress is not on the verbal
prefix, the clitics are placed after the verb.

(70)a. zə ba ye rAwrəm   I will bring it.
    b. Ø   rA- ba ye -wrəm   (I) will bring it.

(71)a. zə́ <u>ba</u> <u>ye</u> rAwrə́m   I will be bringing it.

b. Ø   rAwrə́m <u>ba</u> <u>ye</u>   (I) will be bringing it.

Such behavior at least suggests that Clitic Placement (CP) makes reference to the location of stress.

In(70) and (71), the stress difference was the phonetic realization of an underlying aspectual distinction(non-progressive versus progressive). This might make us think that CP is here o operating on the basis of the aspect distinction; we might try to say that with such prefixed verbs the clitics follow the prefix if the aspect is non-progressive and follow the total verb if the aspect is progressive. However, there are other pieces of evidence that indicate that aspect is not really operating here in directing the operation of CP.   In items (72) and (73) below there is no aspectual difference. In (72), where the stress is verb-initial, the the clitic <u>ye</u> is inserted in the verb. But in (73), where the stress is verb-final, the clitic follows the verb.

(72) á- <u>ye</u> -xistə   He was going to buy (it).

(73) axistə́ <u>ye</u>   He was going to buy (it).

For these, no appeal to "aspect" is possible. The most general statement to cover both these instances and those in (70) and (71) would seem to require a reference to stress.

Let us look now at sentences which are not verb-initial, such as (69) (a), (b) (e), (f), (g) and (h). For such non verb-initial sentences, it will be seen that stress is relevant as well. The ordinary ordinary situation is that the clitics occur after the first constituent of S^{32}, whether a subject, object, post-positional phrase, adverb, etc. Consider the examples in (74):

(74)a. tór <u>me</u> lidə
Tor I   saw   <u>I</u> was seeing Tor.

b. tór ta <u>me</u> rAwor
Tor-to <u>I</u> brought   <u>I</u> brought (it) to Tor.

c. di ta de məlgəri plAr   <u>xo</u> <u>ba</u> zwanday wi
of you of friend father indeed must alive   be
"The father of your friend <u>must</u> <u>indeed</u> be alive."

d. nǝn   ba ye wugorǝm   Today I will see him.
     today will him see

e. kǝla de wǝlidǝ   When did you see (him)?
     when you saw

The following examples reveal, however, that the constituent before the clitic must be a stressed constituent.

(75)a. tór ta me wuwele   I told (it) to Tor.
       Tor-to I told

b. *wǝr ta me wúwele   I told (it) to him.
       him-to I told

c. wǝr ta wú- me wele   I told (it) to him.
       him-to I

(76)a. pǝ cǍ ke ba ye wǍčawi He will put (it) into the well.
       in-well-to will he put

b. *pǝ Ø   ke ba ye wǍčawi He will put (it) into (it).

c. pǝ Ø   ke wǍ-ba ye -čawi He will put (it) into (it).

In the (a) items, as expected, the clitic occurs after the first constituent of S, here a post-positional phrase (PP). Notice that the (a) sentences contain a noun or a strong pronoun in the PP in question. However, in a similar sentence where a weak pronoun[33] is used or where a deletion has occurred in the PP, the clitics may not occur immediately following the PP; that is, the (b) sentences are ungrammatical. Instead, the clitic "ignores" the PP and is placed following the first stressed segment of the verb, as in the (c) items. Thus, in non verb-initial sentences, clitics occur after the first constituent of S, except when the first constituent is a "reduced" pre- or post-positional phrase[34]---i.e. a PP in which either the NP is a weak pronoun or the NP is deleted.

However, there are some instances which show that this is not a fully accurate statement. In (77), both the (a) and the (b) versions contain "reduced" PPs. Nevertheless, in (b) the clitic occurs immediately after the PP.

(77)a. dǝr sara wi de   (It) can be with you. =
       you with be can   Yōu càn keep (it).

b. dǝr sará de wi   (It) can be with you. =
       you with can be   You can keep (it).

Notice that (b) differs from (a) in that it has stress on the PP. The difference in stress here marks the (b) instance as emphatic.[35]

Faced with this data, we have two choices. We could try to say that in non-verb-initial sentences "the clitics are placed after the first constituent of S, except when that constituent is a 'non-emphatic', 'reduced' 'pre- or post-positional phrase'." Besides being rather messy, such a statement has failed, moreover, to characterize what 'emphatic' might mean; the fact that the 'emphasis' turns up as stress is too important to be ignored. If any semblance of generality is to be achieved in such non-verb-initial sentences, one must recognize stress and say simply that "clitics occur after the first constituent of S containing stress."

As was noted earlier, stress was not only able to account for the placement of the mid- and post-verbal clitics in verb-initial sentences, but in some instances such as (72) and (73) [á ye xistə versus axistə́ ye] was the only factor which could account for their placement. Stress can also, we have just seen, account for the non-verb-initial sentences with the most generality. Clearly, it would be economical to recognize the relevance of stress for Clitic Placement in both verb-initial and non-verb-initial sentences.

We will find, in fact, that such a reference to stress will allow us to combine the two statements necessary for verb-initial and non-verb-initial sentences in the most economical and general way. We can avoid having to make two major criterial statements--one regarding 'aspect' for the verb-initial instances and one regarding 'first constituent' for the non-verb-initial instances--plus at least three rather complex additional exception-statements referring to 'reduced' 'pre- and post-positional phrases', to 'emphasis' in such reduced PPs, to a certain class of verbs with initial, separable vowels, and to stress on those initial separable vowels. We have seen throughout that stress can be seen as a relevant factor in all these instances and absolutely necessary in some. To capture this generalization, we must allow the Clitic Placement rule to refer to stress. Stated informally, the transformational[36] rule of Clitic Placement would be something like "Within each simple clause[37], place

clitics after the first segment in which at least one element is stressed, where 'segment' may be an immediate constituent of S or the first segment of the verb."

Although this statement seems to be in conflict with the usual assumptions of current linguistic theory that the levels of the grammar are separate and that a syntactic rule need make no reference to phonological information, it seems not only reasonable but necessary in light of the data. Linguistic theory must be flexible enough to allow for adequate characterization of such data.

5. Interaction between Clitic Placement and a Phonological Rule

The operation of Clitic Placement in Pashto in certain instances provides evidence of another interaction between the components of the grammar, an interaction which might be considered unusual or 'backwards' given the usual assumptions of separate levels in the grammar. In this section I will discuss the interaction between a vowel Contraction Rule, a phonological rule, and Clitic Placement[38], a syntactic rule.

Let me first summarize the rules which will figure in the discussion. As we saw in the previous section, Clitic Placement is a rule which places clitics after the first stressed element of a sentence. Three phonological rules will come up. The first is a vowel Contraction Rule, which will be seen to interact with Clitic Placement:

(78) Contraction Rule (CR)

$$C\vartheta \ + \ \left\{ \begin{array}{c} a \\ A \end{array} \right\} \ \ ---\!\!\rightarrow C.A$$

The (d) items in (79) and (80) show the results of an application of CR:

(79) a. zə   spay   sAtəm   I am keeping the dog.
         I   dog   keep

     b. zə   spay   nəsAtəm   I am not keeping the dog.

     c. zə   spay   axləm   I am buying the dog.

     d. zə   spay   nAxləm   I am not buying the dog.

(80) a. mA   spay   sAtə   I was keeping the dog.

    b. mA   spay   wəsAtə   I kept the dog.

    c. mA   spay   axistə   I was buying the dog.

    d. mA   spay   wAxistə   I bought the dog.

Two further phonological rules figure also in the data to be presented
in this section--a rule reducing the third person clitic (Reduction),
and a rule rounding /θ/ to /u/ (Labialization Rule):

    (81)   Reduction Rule (RR)

$$\#C\acute{\partial} \; + \; ye \; \longrightarrow C\acute{e}$$

The (d) item in (82) illustrates the application of RR:

(82) a. tor   ye   wuwAhə   He hit Tor.
        Tor   he   hit

    b. tə   tor wuwAhəle   Tor hit you.
        you   Tor hit

    c. *tə   ye   wuwAhəle   He hit you.

    d. te___   wuwAhəle   .   He hit you.

    (83)   Labialization Rule (LR)

$$\partial \; \dashrightarrow \; u \; / \; w\_\_ \; \left\{ \begin{array}{l} +^{C}labial \\ +^{C}palatal \quad +^{V}round \end{array} \right\}$$

The (b) examples in (84) and (85) illustrate the results of the
application of LR:

(84) a. wə   daredəm   (I) stood up.

    b. wu̱ ba̱ daredəm   (I) would stand up.

(85) a. wə de 'sAtə   You kept it.

    b. wu̱ me̱ sAtə   I kept it.

    Now let us consider the somewhat peculiar interaction between the
vowel Contraction Rule and Clitic Placement. The interaction is
"peculier" in that the phonological rule appears to have applied
before the syntactic one.

    In (86), the interaction between the CR and Clitic Placement is such
that it appears that the CR precedes Clitic Placement:

(86)a. tor spay axistɵ   Tor was buying the dog.

   b. tor spay wAxistə   Tor bought the dog.   ·

   c. wÁ de xistɵ   You bought it.

   d. nÁ de xistə   You were not buying it.

In (c) and (d), the forms wA and nA have to have resulted from CR
applying to wə + axistə and nə + axistə. This means that the clitic
de has to have been inserted after the vowel Contraction Rule had
applied.

   Consider (87), where the negative particle (underlyingly nɵ)
occurring before ye on the surface does not surface as ne (by RR).
Instead CR has applied.

   (87)a. nÁ ye xləm   (I) am not buying it.

      b. *ne   axləm

Such instances doubly indicate that ye is inserted after the vowel
Contraction Rule. First, nA must be a result of CR applying to
nə + axləm, and so Clitic Placement must have followed CR.· Secondly,
the fact that RR has not applied to produce ne (from, presumably
nə + ye) indicates that CR must have already operated to destroy the
environment for the operation of RR by the time ye was inserted.
Both observations combine to indicate that CR precedes Clitic.
Placement.

   An exactly parallel situation exists in (88) as well. Here,
although the non-progressive marker (underlyingly wə) occurs before
the labial ba, Labialization has not applied to produce wu. Instead
CR has applied to produce wA.

   (88)a. wÁ ba ye xləm   I will buy it.

      b. *wú ba ye axləm

Once again this is a double indication that the CR producing wA
had applied before Clitic Placement placed ba.[39].

   Thus we find a peculiar "backwards" interaction between the vowel
Contraction Rule and Clitic Placement. Linguistic theory must be
able to account for such interactions, whether by allowing direct
interaction through ordering, as presented informally in the

discussion above for the sake of convenience, or by trying to capture what is going on by allowing either the phonological or the syntactic processes involved to apply as global rules. I leave this question open.

Conclusion

This paper has attempted to cover a broad range[40] of facts relating to clitics in Pashto, including the establishment of a SSC on clitic orders and the formulation of the Clitic Placement rule.

Certain of the observations have more than a language-specific interest in that they have theoretical or universal implications. I have argued that not only must certain parts of the SSC be formulated using phonologically explicit items, but that part of the basis for the SSC may be the phonological shape of the clitics. I have suggested that it is due to their phonological shape that certain out-of-order clitics within clitic sequences do not render the sentence ungrammatical. Evidence was presented that it is too simple to claim that the ordering constraint on clitics is due to the same principle as that which requires the fixed order of morphemes in a word. I have argued that Clitic Placement, a syntactic rule, is sensitive to stress. I have presented evidence that a certain phonological rule interacts in what, given the usual assumptions about the separation of levels in the grammar, is a 'peculiar' or 'reverse' way.

Such matters show that there is a wider range of phenomena connected with clitics than has commonly been recognized in the literature, and phenomena with some rather interesting theoretical implications.

FOOTNOTES

* I would like to particularly thank Charles Kisseberth for his
help and valuable suggestions on matters relating to this paper. I
am also grateful to Georgia Green for her helpful comments on various
points. Thanks goes especially to my wife Margie for her insightful
contributions and editing of the paper. I, of course, am responsible
for any errors.

1 There are various dialects of Pashto, which is spoken in Afghanistan,
Pashtunistan, northern Baluchistan, and some major cities of Pakistan. The
paper is based on my own dialect, that spoken near Kabul, Afghanistan.

2 Certain parts of this paper dealing with the interaction of
phonology and syntax were presented at the annual meeting of the
Chicago Linguistic Society in April 1975 and that paper will be
published in the forthcoming volume on that meeting.

3. This is because Pashto is an ergative language in the past
tenses, but nominative-accusative in the non-past tenses, and because
the accusative and ergative cases utilize the same clitic forms.
See also footnote 9. For a detailed study of ergativity in Pashto,
see my article "Ergativity in Pashto", forthcoming in the Penzl
Festschrift, Peter de Ridder, the Hague.

4 The third person clitic appears in three forms depending on
phonological environment: /ye/, -/y/, and /e/. The environments are
described later in the paper. For convenience and clarity, I will
use primarily /ye/ in this paper.

5 The vowel /a/ appears only when the preceding element is
consonant-final; this variation is pointed out later in this paper.

6 The symbol /ə/ is used in this paper for schwa.

7 Actually, due to a syllabification rule mentioned later, this
would be to-ram.

8 This may also be affected by the speed of speech and social
context.

9 Pashto is ergative-absolutive in the past, and nominative-accusative
in the non-past tenses. The same set of pronominal clitics which serve
as possessives in all tenses serve in the past tense as ergative
pronouns and in the non-past tenses as accusative pronouns. It is
assumed throughout this paper that the functional distribution or
case assignment for the clitics has already been correctly taken care
of by earlier processes or rules. I have not included any sequences
that are ungrammatical because of violations of functional or case
assignment conditions on clitic forms. See my paper in the Penzl
Festschrift mentioned above.

10 In my formulation of the SSC, I have used the notations "xo"
and "ba" for these two not because such a notation appears phonologically
necessary as it does in certain other cases, but merely for convenience
because something like "adverb of emphasis" or "future modal" are
both cumbersome and somewhat inaccurate.

11　When it has been examined, cause and effect or at least primary and secondary causes, have been confounded.　Perlmutter, for example, after noting that sequences like se se are ungrammatical, puts both se's in the same slot in the SSC--without really examining the reason behind why they must be put there together.　He then states "The correct generalization is that ungrammaticality is caused not by sequences of two or more clitics of the same phonological shape, but rather by two or more clitics from the same slot in the surface constraint." (1971:43)　Although he is raising the question of cause, he is really talking about the effect (of two phonologically identical items having been put in the same slot, for whatever original reason).

12　Notice that in Pashto there are several such semantically and transformationally possible sequences of phonologically identical clitics, not just one or two as in French or Spanish.　It would seem unwise to ignore the fact that all such are ungrammatical.

13　Although similar in conception to Perlmutter's 'Nonglobal Constraints' on clitics (for French and Spanish), the 'Condition' I have proposed here does not really seem to be the same sort of thing.　Perlmutter's nonglobal constraints are "construction particular," "additional constraints, superimposed on the global constraints" as embodied in the SSC　(1971:61); the examples he gives are instances linked to a particular verb.　The instance here in Pashto is not linked to a particular verb, and, moreover, is more intimately bound up with the operation of the filtering function of the SSC itself. It does not seem to be "additional" but rather a part of the SSC in general.　It may be that the need for this Condition poses a problem for the SSC theory and notation.

14　This may mean that "(a) mam" rather than "(a)m am" should be entered in the SSC for the eastern dialect, even though there are obvious difficulties with such a version.

> xo　　　ba　　　(a)m　　1sg　　de　　3
> 　　　　　　　　　(a) mam

Such a version would also make it difficult to combine the SSC's for the two dialects/styles as was done in　36).

15　These out-of-order sequences are possible only before xo. Why I don't know, but it probably has something to do with the fact that xo is the initial clitic in the SSC ordering.　The instances involving Reduction and Glide Formation　are also possible before ba.

16　See Perlmutter, footnote 35, page 57, and footnote 42, page 65. On page 57, when faced with a switching of two adjacent clitics in positive imperatives, he suggests the existence of a low level flip rule.　On page 65, faced with trying to maintain his fixed order or morphemes in a word as applicable to clitic hypothesis, he leaves the flip question open within words.

17 Perlmutter recognizes this implication in footnote 35, page 57.

18 To make the reordering rule global is a possibility; the reordering rule could perhaps be formulated to "see ahead" to "know" which elements would later be phonologically incorporated. This does not seem an obviously better proposal than the second proposal to be suggested in the text which allows for a more direct interaction between the phonological and syntactic components. In either treatment, it is clear that the two are interacting. A global reordering rule solution has the disadvantage of not also automatically accounting for the *am am versus a mam data discussed in section 2.2, which the second proposal in the text would account for (if a mam is entered in the SSC as suggested in footnotes 14 and 19.)

19 This solution would have the advantage of accounting for the grammaticality of a mam versus the ungrammaticality of *am am directly, by entering a mam in the SSC since the SSC would be applying after the syllabification rule.

20 I will discuss certain other problems posed by Pashto's data in my dissertation.

21 Before beginning, let me point out that Perlmutter mentions the clitics' "placement" next to (1971:78), "attachment to" (1971:65,66,81) "leaning on" (1971:65,81), and "positioning adjacent to" (1971:81) the host word or constituent. He uses all four as equivalants as far as I can tell. I will therefore take the four as equivalants, but will most often use "positioning" or "placement" since those are the clearest in Pashto. It will be seen, moreover, that regardless of whether they are taken as equivalents or whether some distinction is attempted, serious problems arise with his proposal.

22 I do not know if a VP node can be motivated for Pashto. I will thus use simply "constituent of S" in such instances.

23 See section 4 on Clitic Placement.

24 See item (58).

25 There are a number of verbs of which the first vowel or syllable has been analyzed by speakers as a prefix in some ways, and there is evidence that probably historically they were prefixes of some kind.

26 Perlmutter apparently tends to assume they are equivalant.

27 In such cases, the insertion of such elements between the prefix and the verb root is possible only when the prefix is stressed. When it is stressless, the insertion is impermissible (even with the same verbs). This suggests that perhaps stress is a relevant factor relative to the degree of cohesiveness of morphemes in the two situations. This needs further study.

28   If the infixation analysis mentioned as a possibility above
is accepted, an example like (66) is a direct counter-example to
Perlmutter's claim. [If infixation is not accepted, then the
'host plus clitics as word' and the 'host plus clitics as constituent'
hypotheses are both in serious question as we saw: since á-ye is
neither a word nor a constituent in any usual sense because /a/- is not
even a morpheme.   One must give up the 'host plus clitics as
constituent' (as well as the 'host plus clitic as word') hypothesis
if the infixation analysis is not accepted.]   However, even if
infixation is not accepted, we will see that the order of morphemes
in a word explanation for clitics is directly contradicted by items
like (67) and (68) anyway.

29   Although Perlmutter mentions elsewhere that a morpheme realized
as Ø phonologically on the surface could slip through the SSC, the
contracted morphemes here are definitely not phonologically Ø.   Thus,
that 'out' is too simply formulated to be available to account for this
data either. But even if it could, these still contradict the statement
"If there are two words which contain the same morphemes but in a
different order, then the underlying representations of the two are
distinct", as applied to the boxes as "words".

30   Pashto is a SOV language.

31   In marking stress in these items, I have made no attempt to
distinguish degrees of stress, and have, moreover, marked it only
where actually relevant for our purposes here.

32   See footnote 22.

33   The pronouns I have termed "weak" are different from the
strong pronouns in that they never carry stress and cannot stand alone.
They are different from clitic pronouns in their behavior.

34   These pre- and post-positional phrases do not normally carry
stress. (See, however, footnote 35.) They move to the verb regardless
of their original position, and there they occur in a fixed order.
Given these characteristics, one can really only call them clitics.
However, their relative ordering in sequence, as well as their movement
and placement next to the verb, can be accounted for transformationally.
If they are considered "clitics", then, this may in a sense pose a ·
problem for the hypothesis that clitics are universally subject to
surface structure constraints. If they are not considered "clitics",
then the definition of "clitic" becomes unclear! I will study these
and related matters in detail in another paper and will include them
in my dissertation. [If they are "clitics", then the present paper
should be viewed as a study of just one type of clitics in Pashto!]

35   The only time that some of these reduced pre- and post-positional
phrases may carry stress--and then only on the post-position--is when
they originate next to certain forms of the auxiliaries and when the
sentence is emphatic.

36 I have assumed that Clitic Placement is a transformational rule.
For a number of reasons which cannot be gone into here, to treat it as,
for example, a surface structure constraint, would not be as satisfactory.
The use of the transformational solution of course makes a somewhat
stronger claim (than would a surface structure treatment): i.e. that
certain late types of syntactic processes must be able to utilize a
limited range of phonological information. In the instance of Clitic
Placement, such a reference to stress seems quite natural and not at
all "wild"; a rule handling stressless elements which cannot stand
alone (i.e. clitics) might well be expected to refer in some way to
the stressedness of other elements; Clitic Placement is obviously a
rule designed to find a "protected" position in the sentence for clitics
since they cannot occur clause initially and cannot stand alone; it would
seem natural that a stressless item might be too weak to so "protect"
the clitics. In fact, the possibility that stress may be relevant in
one way or another for the behavior of clitics in other languages seems
worthy of further examination.

37 Clitic placement operates only within each simple clause; in
complex sentences, then, it operates only inside each simplex.

38 The same interaction exists between vowel Contraction and
another late syntactic rule, Negative Reordering, as well. See my paper
in the April 1975 Chicago Linguistic Society volume, forthcoming.

39 One might try to say that Clitic Placement is ordered before
the Contraction Rule by saying that CP places the clitics <u>after</u>
the /a/- in a form like <u>axistə</u> and that the CR applies afterward.
That is, one might try to claim a derivation like: <u>*me nə́ axistə</u>
---> CP <u>*nə a- me xistə</u> ---> CR <u>nÁ me xistɔ</u>. Such a claim is untenable
for a number of reasons which cannot be covered here. Let us note just
two points. First, everywhere else in the language, clitics follow
immediately after a stressed element like nə; to place them just in
this instance one slot over to the right, after /a/, would be quite
unmotivated. This point is lent further weight by parallel instances
with verbs beginning with a separable element other than /a/; in these
it is not possible to place the clitics after the separable element
if a nə precedes. That is, with a verb like pÁcawə, one cannot get
*nə́ pÁ- me cawə. Therefore with <u>axistə</u>, it seems reasonable that
clitic placement would not give <u>*nə́ a- me -xistə</u> either, even as an
intermediate stage.

40 There are various other problems related to the study of clitics
in Pashto which I did not include in this paper and which I will treat
in the future.

196

REFERENCES

Kayne, Richard S. (1969) "The Transformational Cycle in French
       Syntax". Doctoral dissertation, MIT

Perlmutter, David M. (1971) Deep and Surface Structure Constraints
       in Syntax. New York, Holt.

Ross, John (1967) "Constraints on Variables in Syntax". Doctoral
       dissertation, MIT. Mimeoed. Indiana University Linguistics
       Club.

Wanner, Dieter (1975) "The Mis-Placed Clitics of Italian". Dittoed.
       University of Illinois.

STUDIES IN THE LINGUISTIC SCIENCES

The following issues of SLS have already been published.

Orders for these should be sent to:
SLS Subscriptions, Department of Linguistics
4088 Foreign Languages Building
University of Illinois
Urbana, Illinois 61801

STUDIES
IN THE
LINGUISTIC SCIENCES

STUDIES IN THE LINGUISTIC SCIENCES

PUBLICATION OF THE DEPARTMENT OF LINGUISTICS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

AIM: *SLS* is intended as a forum for the presentation in prepublication form, of the latest original research by the faculty and especially the students of the Department of Linguistics, University of Illinois, Urbana-Champaign.

SPECIAL ISSUES: Since its inception *SLS* has been devoting one issue each year to restricted, specialized topics. A complete list of such special issues is given on the back cover. The following special issues are under preparation: Spring 1976: *Papers in General Linguistics* with a special section edited by Jerry L. Morgan: *Topics in Relational Grammar;* Fall 1976: *Papers on African Linguistics,* edited by Eyamba G. Bokamba and Charles W. Kisseberth.

BOOKS FOR REVIEW: Review copies of books (in duplicate) may be sent to: Ladislav Zgusta, Review Editor, Studies in the Linguistic Sciences, Department of Linguistics, University of Illinois, Urbana, Illinois, 61801.

SUBSCRIPTION: There will be two issues during the academic year. Requests for subscriptions should be addressed to *SLS* Subscriptions, Department of Linguistics, 4088 Foreign Languages Building, University of Illinois, Urbana, Illinois, 61801.

Price: $3.00 (per issue)

STUDIES IN THE LINGUISTIC SCIENCES

PAPERS ON HISTORICAL LINGUISTICS:
THEORY AND METHOD

Edited by
Ladislav Zgusta
and
Hans H. Hock

VOLUME 5, NUMBER 2
FALL, 1975

DEPARTMENT OF LINGUISTICS, UNIVERSITY OF ILLINOIS
URBANA, ILLINOIS 61801

T A B L E   O F   C O N T E N T S

THE DEVELOPMENT OF THE SLAVIC MID VOWELS

IN NEWLY CHECKED SYLLABLES IN THE NORTHWESTERN UKRAINIAN DIALECTS*

Christine Yurkiw Bethin

One of the most pervasive linguistic features of Contemporary Standard Ukrainian, and one which serves to differentiate it from the other East Slavic languages, is the raising of the two original Common Slavic mid vowels /e/ and /o/ to the high, front vowel /i/ in checked syllables.

It is generally believed that Common Slavic was characterized by open-syllable structure of the type CV (cf. Meillet 1934:19). The later change from this open syllable system to a checked one was significantly motivated by the loss of the two Common Slavic (CS) short or reduced high vowels /ı/ and /ü/, also known as jers. In the CS dialect which later formed the basis for Contemporary Standard Ukrainian (CSU), the mid vowels which found themselves in newly checked syllables as a result of the loss of the "weak" jers underwent a change often referred to as "ikavism". Thus, CS *neslu > CSU nis, CS *mostu > CSU mist.[1] The precise nature of this change and the course of its development are still subject to discussion.

In this paper I will discuss two of the theories that have been proposed in the literature as possible explanations for this change.[2] The southwestern Ukrainian dialects, which are interesting for their various manifestations of [-low] vowels in this environment, will be mentioned insofar as they are relevant to the development in the northwest. The northwestern dialects, which are characterized by diphthongs in these newly checked syllables, will be examined in more detail with regard to the predictions of the two theories under discussion. Evidence from Polish and other Slavic languages will be included for comparison. Finally, it will be shown that a synchronic problem can shed some light on the possible diachronic process.

The data can be represented by the following examples. The southwestern dialect data are:

Lemkian:	ft'uk	'he ran away'	ftekla	'she ran away'
	vyu	'ox'	voua	'ox' gen.sg.
Sjan:	l'ut	'ice'	lédu	'ice' gen.sg.
	nys	'nose'	nosu	'nose' gen.sg.

Hutsul:	m'id	'honey'	médu	'honey' gen.sg.
	z'ir	'eyesight'	zóru	'eyesight' gen.sg.

(Ukraine: A Concise Encyclopedia 1963:476-8)

Boikian:	m'id	'honey'	médu	'honey' gen.sg.
	n'is	'nose'	nósa	'nose' gen.sg.

(Černjak 1960:157)

The northwestern dialect data is represented by the following:

	Stressed				Unstressed	
Voldava:	nüeč	'night'	nóči	gen.sg.	ná nuč	'for a night'
	p'iеč	'oven'	péči	gen.sg.	nápyč	'bake a lot'
Pidljašša:	muost	'bridge'	mósta	gen.sg.	mustká	dim. gen.sg.
	p'iеč	'oven'	péči	gen.sg.	záp'ik	past m.sg. 'bake'
Polissja:	muost	'bridge'	mósta	gen.sg.	mostká	dim. gen.sg.
	p'iеč	'oven'	péči	gen.sg.	záp'ek	past m.sg. 'bake'

(Kuraszkiewicz 1951:177-8, 1933:A46)

Traditionally, the motivation for ikavism has been attributed to the phenomenon of compensatory lengthening as a result of the loss of the "weak" jers (Šaxmatov 1915:270-1; Trubetskoy 1924:229-300; Bulaxovs'kyj 1951:241-2). This compensatory lengthening is thought to have resulted in a general process of diphthongization which was subsequently followed by monophthongization in some of the dialects, including the standard dialect. Bulaxovs'kyj (1951:242) postulates the following historical development: *vo-zú > vóz > výoz > vyuz > výiz > výz > viz. (The phonetic character of the intermediate diphthongs is not described.) One difficulty with this view is the fact that the written sources available do not offer any evidence for postulating an intermediate process of diphthongization. However, linguists adhering to this view feel that the evidence of the northwestern dialects (cf. above), which do show diphthongization, makes it likely that the southwestern dialects also went through a stage of diphthongization. The various reflexes of the mid vowels in the southwestern dialects presented above, then, are taken to represent monophthongizations of underlying diphthongs at various stages of development, i. e., vyuz > vuz, výiz > viz, vyoz > vyz.

The opposing view holds that the motivation for the change of the mid

vowels in newly checked syllables is vowel <u>assimilation</u>. The southwestern
dialects are considered to have assimilation of mid vowels to following
high vowels.[3] Since the jers were high vowels, Kurylo (1928:7-17) argues
that ikavism can be motivated by vowel assimilation, i. e., vozǔ > vuzǔ >
vuz. She believes that assimilation of mid vowels to following high vowels
had its origin in the southwestern dialects from where it spread north-
ward and supposedly there these monophthongs then diphthongized under the
influence of the strong expiratory stress. In addition, since there are
several northern dialects in which the quality of the mid vowel in <u>unaccented</u>
<u>newly checked</u> syllables does not differ from the mid vowel in the open
<u>syllable (cf.</u> the evidence of the Polissja dialect above), Hancov (1923:19)
and Kurylo were led to conclude that the quantitative change in the mid
vowels was a northern innovation conditioned by stress.

Let us take, for example, the two northern dialects of Pidljašša and
Polissja and examine the effects of the northern stress and how the two
theories propose to deal with it. The Pidljašša dialect has muȏst ~
mustká, whereas the Polissja dialect differs in the unstressed syllable:
<u>muȏst ~ mostká.</u>

The assimilation theory would account for the Pidljašša example in
the following way: CS *<u>mostu</u>, *<u>mostǔka</u> by <u>assimilation</u> gives <u>mustǔ</u>,
mustǔka, by <u>jer</u> <u>drop</u> <u>must</u>, mustka and by <u>diphthongization</u> <u>under</u> <u>stress</u>
muȏst, mustká. Note, however, that there is no way that this theory can
account for the unassimilated vowel in Polissjan <u>mostká</u>, if it claims that
assimilation was shared by all of the dialects under consideration.

The compensatory lengthening theory can be exemplified by Kuraszkie-
wicz's proposal (1933:A47), formulated precisely in answer to the possibi-
lities raised by Hancov and Kurylo. Kuraszkiewicz postulates that <u>jer</u> <u>loss</u>
resulted in compensatory lengthening of the mid vowel in the preceding
syllable. The lengthened vowel is then said to have undergone "sonant
formation" ($o > {}^{u}_{}o$, $e > {}^{i}_{}e$), further <u>diphthongization</u> followed by the devel-
opment of the strong <u>northern</u> <u>expiratory</u> <u>stress</u> and subsequent <u>monoph-
thongization</u> of the <u>unstressed vowel.</u> The development in the Pidljašša
type dialects is proposed to have been the following:

	*mostu	*mostǔka
<u>Jer</u> <u>loss</u>	most	most ka

Sonant formation	m^{u}ost	m^{u}ostka
Diphthongization	muộst	muộstka
Northern stress	muộst	muộstka´
Monophthongization	muộst	mustka´

The divergent development of the Polissja dialect is explained as the re-
sult of a difference in the relative chronology. It is claimed that since
the Polissjan dialect is located to the north of the Pidljaššan, it is not
unlikely that the northern stress affected it at an earlier time than the
more southern Pidljašša dialect. Kuraszkiewicz postulates the following
diachronic process for the Polissjan dialect:

	*mostŭ	*mostŭka
Jer loss	most	most ka
Sonant formation	m^{u}ost	m^{u}ostka
Northern stress	m^{u}ost´	m^{u}ostka´
Monophthongization	m^{u}ộst	mostka´
Diphthongization	muộst	mostka´

Kuraszkiewicz's proposal implies some significant phonetic difference
between what he terms a "sonant" (i.e., ^{u}o) and what he classifies as a
diphthong (i.e., uo). This difference, however, may be difficult to sub-
stantiate phonetically. It would be simpler to account for the difference
between the two dialects as the result of a difference in the relative chron-
ology of two rules, namely of diphthongization and shortening: Polissja
may be assumed to have shortened the newly lengthened vowels in unstressed
syllables before diphthongization, and Pidljašša, after diphthongization.

With regard to the southwestern dialects where there are no diphthongs,
Kuraszkiewicz proposes that the northern stress did not penetrate that far
south and that, therefore, diphthongs in all positions monophthongized.
Note, however, that this proposal suffers from the disadvantage of having
to postulate a diphthongization in the southwest for which there is no
written or synchronic evidence.

It would seem, then, that the compensatory lengthening theory which
tries to account for the different realizations of the mid vowels in the
north and in the south by a chronological difference of two rules, and the

assimilation theory which assigns diphthongization to the north exclusively, are both difficult to substantiate. Neither theory considers the possibility that the changes which took place in the northwestern dialects may have been different from the development in the southwest.

A more acceptable interpretation can be found, at least for the northwestern dialects, if we consider their development separately from that of the southwestern dialects. The purpose of this paper is to do so and thereby to decide between the two possible alternative explanations of the northwestern dialect data: (a) diphthongization once was a general change and survived only in stressed environments; or (b) diphthongization is a secondary innovation, taking place only in strongly stressed environments.

A phenomenon similar to that of the northwestern Ukrainian dialects can be found in the West Slavic languages, namely, that of lengthening vowels before secondarily final obstruents. The case in Polish is especially interesting. The following alternations are found in Standard Literary Polish:

Singular	Plural	gloss
grup	groby	grave
m'ut	m'ody	honey
nuš	nože	knife
vus	vozy	cart
stuu	stouy	table
potop	potopy	flood
puot	puoty	fence
los	losy	fate
bok	boki	side
dom	domy	house

The rule accounting for these alternations is described in grammars of Polish as one which lengthens a vowel in a checked syllable (historically, all final consonants had been followed by a jer) before a voiced, nonnasal consonant or a glide.[4] That the rule operative here is a type of lengthening (i.e., o ọ (> u)) and not just a raising is supported, among other considerations which will not be discussed here, by written sources,

which for a long time represented the vowel in the newly checked syllable
as a geminate. Stieber dates the lengthening change to about 1000 A.D., the
date usually cited also for the changes in the jers of West Slavic. Stie-
ber writes:

> In P[olish] this compensatory lengthening occurred only before
> a word-final jer and only where the consonant preceding it was
> voiced (phonetically or both phonemically and phonetically)...
> It also occurred in two Sl[avic] languages now or formerly bor-
> dering on P[olish], but unconnected with each other; U[krainian]
> and U[pper] S[orbian]. In both the lengthening covered a wider
> scope than in P[olish], occurring both before voiced and voice-
> less consonants, and before a final jer as well as a medial one...
> (1973:28)

In the last quoted sentence, Stieber raises an interesting question. If
both Upper Sorbian (to the west of Polish) and Ukrainian (to the east) have
compensatory lengthening before all consonants in newly checked syllables,
how is one to account for the fact that in Polish this lengthening is res-
tricted to environments before a voiced obstruent? Are we to say that Polish
is the innovating dialect? Or are we to assume that the changes are not
related in the three areas?

The geographical distribution of this change seems to indicate a
spread. If we take the synchronic situation in Polish to be representa-
tive of the diachronic, we are then led to say that Upper Sorbian and Ukrai-
nian independently innovated in lengthening before a voiceless obstruent.
Theoretically, such independent innovations would not be totally unmotivated,
for in those Ukrainian dialects where there is final devoicing, a lengthen-
ing rule of the Polish type would be opaque (as it is in Polish) and this
opacity could be said to motivate a generalization of the lengthening rule
to voiceless environments.[5]

On the other hand, assuming that the lengthening process in Polish
actually represents a compensatory phenomenon (and not originally phon-
etic, non-phonemic lengthening before voiced segments as in English
[bæ:d] vs. [bæt]), as it seems to be historically, the more general
case would be lengthening in all checked syllables. This would entail the
assumption that Polish originally had lengthening in <u>all</u> checked syllables
with a mid vowel. The innovation would then be in Polish and would con-
sist of shortening long vowels before obstruents that were not voiced.

Whatever the correct interpretation may be, Polish does provide evidence for a <u>lengthening</u> process. Similar lengthening phenomena can be cited from Slovene (cf. bȍg vs. bogâ, mȍst vs. mostâ, lȇd vs. ledû) and from Serbo-Croatian (bȍg vs. bȍga, most vs. mȍstȁ, lȇd vs. lȅdu, where ⁀ indicates long falling and ˅ short falling accent); cf. Vaillant 1950: 274. On the other hand there is no evidence in any of these languages for phonemic vowel assimilation. It is not unlikely that the northwestern Ukrainian dialects also underwent a lengthening process. It may therefore be postulated that the motivation for the change in the mid vowels of Ukrainian dialects can be found, at least historically, in compensatory lengthening.

The other aspect of the lengthening theory holds that the compensatory lengthening led to diphthongization, which is still retained under stress in the northern dialects. It is also believed that the unstressed vowels in the northern dialects were once diphthongs which have since monophthongized. However, as has been stated earlier, while historically there was some evidence for a lengthening process, there is no written historical evidence in Ukrainian which would allow us to postulate diphthongs where they do not occur today.

It seems, however, that there is <u>synchronic</u> evidence arguing for intermediate diphthongal stages even in unstressed environments. In the northern dialect of the Voronež region, we find the following alternations:

I	Nom. sg.	Gen. sg.	gloss
	stvél	stóla	table
	svél	sóli	salt
	tvék	tóku	current (n.)
	kvét	kóta	tomcat
II	ós'en'	ósen'i	autumn
	jás'en'	jásen'i	ash tree
	p'éč	póčy	oven

(Komisarova 1965:178-9)

The alternations are again in the mid vowels of open and checked syllables: ve - o and e (with palatalization of the preceding consonant) e (with the preceding consonant not palatalized). Stress does not seem to play a role here; cf. ós'en' (unstressed) beside p'éč (stressed).

Let us first examine group I. Historically and in some synchronic descriptions, the /v/ of East Slavic is derived from an /u/. This is motivated by the fact that in Slavic /v/ does not behave entirely like an obstruent --although it undergoes devoicing, it does not condition it-- and it retains many sonorant characteristics. It is thus possible to describe this ve̜ o̜ alternation as an underlying alternation between ue̜ and o̜. Group II provides more complicated evidence: there is an alternation between consonants which are palatalized before the following front vowel and those that are not. This occurrence of palatalized vs. nonpalatalized corresponds to checked and open syllables.

What is important in this respect is that in this dialect, as in most Ukrainian dialects, obstruents normally are not palatalized before /e/. Since historically obstruents were originally palatalized before all front vowels, the usual Ukrainian situation could be described as a result of a dispalatalization rule (C' → C/__e). Synchronically, it is possible to say that the palatalization rule of Ukrainian is simply C → C'/__i. Both analyses, however, face the same problem, namely the fact that in the above forms, palatalized obstruents occur before a front mid vowel with the added, rather odd, restriction that they occur only before an e̜ which is in a checked syllable.

This difficulty can be resolved if, parallel to the ve̜ - o̜ of group I, we assume an earlier ie̜ - e̜ for group II. In this case we only need to assume that the diphthongization of the original e̜ to ie̜ in, as should be evident, both stressed and unstressed newly checked syllables took place before the dispalatalization before e̜ and that the subsequent monophthongization of ie̜ to e̜ took place after the dispalatalization:

	/C'e/
Diphthongization	ie
Dispalatalization	--
Monophthongization	e

This ordering will then correctly account for the attested forms, at least in a dynamic, historical analysis. (Synchronically, one might have some misgivings about the introduction of an "abstract" ie̜ in the

intermediate representation. However, even here, the parallelism of the type ve o would seem to make such an analysis acceptable, especially since we are not dealing with an abstract form at the underlying level.)

This solution can then be extended to the problem of the diphthongs in all the northern dialects. It is thus very likely that the diphthongs found under stress in the northwestern Ukrainian dialects today do, in fact, represent the preservation of an older lengthening change which was followed by a general diphthongization and an innovation only under the new stress. (The situation in the southwest remains to be more closely studied.) There seems to be no evidence, historical or synchronic, in support of the alternative proposal that some type of vowel assimilation took place in the northern Ukrainian dialects.

The evidence given in this paper thus removes some of the difficulties concerning the diphthongization or lengthening hypothesis and indicates that this hypothesis is clearly preferable to the alternative assimilation hypothesis, at least for the northwestern Ukrainian dialects.

FOOTNOTES

* The preparation of this paper has benefited greatly from the helpful suggestions of Hans H. Hock.

[1] Mid vowels resulting from the vocalization of strong jers (*u o, i. e) do not undergo this change.

[2] A third possibility, that of ikavism being the result of the Common Slavic neo-acute accent is discussed in detail in Carlton (1974).

[3] Evidence for possibly assimilatory vowel reduction in the southwestern dialects may be found in Boikian: CSU tobí, B tubí; CSU ob'íd, B ub'íd; and in the Sjan dialect: CSU nesý, S nisí; CSU berú, S birú. These seem to be cases of unstressed vowel reduction except that in these dialects it is limited to syllables before high vowels, and therefore has come to be interpreted as a type of assimilation. See Smal'-Stockij (1927), Hancov (1923),Kurylo (1928) and Pan'kevyč (1942).

[4] See Stieber (1973) and Gladney (unpublished) for a representative explanation.

[5] For a discussion of such generalizations and their motivation, cf. Kiparsky (1973).

REFERENCES

Andersen, Henning. 1966. Tenues and mediae in the Slavic languages: an historical investigation. Harvard University dissertation.

Bulaxovs'kyj, L. A. 1951. Kurs sučasnoji ukrajins'koji literaturnoji movy. Kiev: Radjanska škola.

Carlton, Terence Roy. 1974. Ukrainian ikavism as a reflex of Proto-Slavic neo-acute. Ohio State University dissertation.

Černjak, V. C. 1960. Xarakterystyka systemy holosnyx fonem bojkivs'koho hovoru. Pytannja ukrajins'koho movoznavstva 4.150-67.

Gladney, Frank Y. Unpublished. A handbook of Polish.

Hancov, Vsevolod. 1923. Dijalektolohična klasyfikacija ukrajins'kyx hovoriv. Zapysky Istoryčno-Filolohičnoho Viddilu Ukrajins'koji Akademiji Nauk, IV.80-144.

Kiparsky, Paul. 1973. Abstractness, opacity and global rules. Indiana University Linguistics Club.

Kobyljans'kyj, B. 1928. Hucul'skyj hovir i joho vidnošennja do hovoru pokuttja. Ukrajins'kyj dialektolohičnyj zbirnyk 1.1-92.

Komisarova, L. P. 1965. Do pytannja pro refleksy davnyx o, e v hovorax ukrajins'koji movy. Praci XI Respublikans'koji Dijalektolohičnoji Narady, 177-9. Kiev: Naukova Dumka.

Kuraszkiewicz, W. 1931. Z badań nad gwarami póɫnocno-maɫoruskimi. Rocznik Slawistyczny 10.175-209.

-----. 1933. Pryczynek do iluczasu maɫoruskiego. Lud Słowiański 3.A40-8.

-----. 1938. Z badań nad ikawizmem w ruskich gwarach karpackich. Lud Słowiański 3.A78-74.

Kurylo, O. 1928. Sproba pojasnyty proces zminy o, e v novyx zakrytyx skladax v pivdennij hrupi ukrajins'kyx dijalektiv. Zbirnyk Istoryčno-Filolohičnoho Viddilu Vse-Ukrajins'koji Akademiji Nauk 80.7-17.

Meillet, A. 1924. Le slave commun. Paris: Champion.

Pan'kevyč, I. 1942. Uvahy do vyjasnennja procesu ikannja. Naukovyj zbirnyk Ukrajins'koho Vil'noho Universytetu v Prazi 3.293-308.

Smal'-Stockyj, S. 1913. Ruthenische Grammatik. Berlin: Goeschen.

-----. 1927. Polis'ki mišani hovory i polis'ki diftongy. Slavia 7.28-9.

Stieber, Z. 1973. A historical phonology of the Polish language. Heidelberg: Winter.

Šaxmatov, A. 1915. Očerk drevnejšego perioda istoriji ruskago jazyka. Petrograd: Imper. Akademija Nauk.

Trubetskoy, N. 1924. Einiges über die russische Lautentwicklung und die Auflösung der gemeinrussischen Sprachenheit. Zeitschrift für slavische Philologie .287-319.

Ukraine: A Concise Encyclopedia. 1963. Ed. Volodymyr Kubijovyč. Vol. 1. Toronto: University of Toronto Press.

Vaillant, A. 1950. Grammaire comparée des langues slaves. Vol. 1: phonetique. Lyon: IAC.

Žovtobrjux, M. A. and B. M. Kulyk. 1965. Kurs sučasnoji ukrajins'koji literaturnoji movy. Kiev: Radjanska škola.

THE EVOLUTION OF TONES IN PUNJABI[1]

Tej K. Bhatia

0.1: Along with Lahnda and the Western Pahari dialects, Punjabi is the
only modern Indo-Aryan language which has developed tonal contrasts.

Punjabi has three phonemic tones. The low tone /ˇ/ is characterized
as a low-rising tone by Bailey (1915:ix).[2] The high tone is a rising-
falling tone; cf. Bailey 1915:ix. The mid tone is never represented, since
it is predictable by rules of redundancy; i.e. if a vowel does not bear any
tone specification at the level of phonetic representation, it carries a
mid tone.

0.2: At the same time, Punjabi has lost the old Indo-Aryan series of
voiced aspirates, changing them into voiceless stops, initially, and voiced
stops in other environments. Similarly, the Old Indo-Aryan voiced ɦ
appears voiceless initially and is lost elsewhere.

Punjabi is largely surrounded by a Hindi speaking region which has
retained h and the old voiced aspirated consonants. On the other side of
Punjabi, Kashmiri is spoken. In this language, the distinction between
voiced aspirates and voiced unaspirates has been neutralized, and as a
consequence, the voiced aspirates are realized as voiced aspirated segments
in all environments.

0.3: As it turns out, there is a close correlation between the (re-
tained) h and voiced aspirates of Hindi and the Punjabi tones. Thus, in
place of Hindi voiced aspirates, Punjabi shows unvoiced unaspirated segments
in initial position followed by low tone; and in non-initial position, it
shows voiced unaspirated stops either preceded by high tone or followed
by low tone. Similarly, after initial h, Punjabi offers low tone; and
corresponding to Hindi V h (V), Punjabi shows a sequence without h and with
either high tone or low tone on the neighboring vowel(s). Compare the
following table of general correspondences. (For examples, cf. Section
1.3.1-2 below.)

Hindi	→	Punjabi	
# bh V	→	# pV̌	
# h V	→	# ʰ V̌	
V̇ { bh } V	→	V́	b ˇ
[+accent] { h }		[+accent]	{ ɸ ˇ }

$$V \rightarrow [-\text{accent}] \left\{ \begin{matrix} bh \\ h \end{matrix} \right\} V$$

$$V \left\{ \begin{matrix} bh \\ h \end{matrix} \right\} \#$$

$$V \rightarrow [-\text{accent}] \left\{ \begin{matrix} b \\ \emptyset \end{matrix} \right\} \acute{v}$$

$$\acute{v} \left\{ \begin{matrix} b \\ \emptyset \end{matrix} \right\} \#$$

The set of correspondences is uniform throughout the five series, i.e. velar, palatal, retroflex, dental, and bilabial. On the other hand, the Hindi unvoiced unaspirates, unvoiced aspirates, and voiced unaspirates do not show tonal correspondences in Punjabi.

0.4: These correspondences were noticed in earlier descriptions of Punjabi (cf. Bailey 1915, Bloch 1925, Jain 1934, Bahl 1957 a,b, Gill 1960, Arun 1961 and Gill and Gleason 1963) and interpreted as the result of a neutralization of the voiced aspirates with the unaspirated voiceless or voiced stops (depending on the environment) and of the loss of non-initial h. These developments, in turn, were offered as an explanation to account for the emergence of tones in Punjabi.

Such an explanation, however, falls short of a phonetic explanation, since it fails to indicate the phonetic features present in voiced aspirates and h which led to the development of different tones. Bloch (1925) was the only exception in this regard. He attempted to set up a correlation between tones, stressed vowels, and h. However, his paper remained unfamiliar to most linguists, probably because it was in French. I will present Bloch's analysis in detail in Section 1.3.3 below.

0.5: This paper presents an attempt to provide for a more satisfactory explanation of the development of tones in Punjabi. Besides attempting to examine the phonetic factors responsible for the development of tones, it will also examine the question whether the emergence of tones in Punjabi is to be explained as a regular phonetic development, as a 'borrowed' phenomenon, or as the result of mere accident. Finally, the paper addresses the question whether the synchronic derivation of Punjabi tones should be in terms of underlying voiced aspirates and h, and by means of rules mirroring the historical development, or whether tones should be regarded as underlying.

1: The evolution of tones in Punjabi seems to be a rather recent development, due to regular linguistic change.

1.1: Historically, Punjabi developed from Proto-Indo-Aryan. Although Vedic Sanskrit, the earliest Indo-Aryan dialect, had pitch accents,

no correlation can be set up between the Vedic pitch accent and the tones of Punjabi. Moreover, Classical Sanskrit and its off-shoots (Pālī, the Prākrits, the Apabhraṁśas, etc.) are non-tonal beyond any doubt. The Vedic pitch accent thus was lost at a fairly early time, making it highly unlikely that the tones of Punjabi are an 'inherited' phenomenon.

1.2: On the other hand, the emergence of tones is not likely to be a 'borrowed' or 'accidental' phenomenon. If the Punjabi tones were indeed a borrowed phenomenon, the Western Pahari dialects and neighboring Tibetan languages (such as Purik and lower Kanauri) presumably would have to be considered the source. In that case, the correlation between older Indo-Aryan voiced aspirates and h and Punjabi tones would have to be considered accidental.

However, such an explanation would be unsatisfactory for the follow-reasons:

(1)   It would miss a significant generalization and would have to claim that tones are phonologically unpredictable in the diachronic grammar of Punjabi;

(2)   It would fail to relate tones with some other linguistic processes in the grammar of Punjabi, for which cf sections 2 and 3;

(3)   Perhaps most importantly, some W. Pahari dialects present an intermediate stage, which Punjabi must have once gone through (cf. 1.3.6). Bailey (1915:ix) noticed that in Cambālī ghora 'horse', bhaī 'brother' and ghər 'house' are pronounced ghora, bhaī and ghər, i.e., with tone completely predictable in terms of voiced aspiration. Similarly, in Bahl 1957b:33, we came across a Western Punjabi [dúgha] 'deep' which shows that also here, the high tone is not fully phonemic. Bailey further claims that the low tone is practically unknown in most of southern dialects of W. Pahari. It is difficult to see how a 'borrowing hypothesis' could account for the 'redundancy' types encountered in Western Punjabi and W. Pahari vs. the phonemicization of tones in general Punjabi.

1.3: These difficulties disappear if it is assumed that the tones of Punjabi, as well as of the Pahari dialects, are the result of regular sound changes.

1.3.1: Thus, low tone in initial syllables can be derived by a set of changes which devoice and deaspirate, voiced aspirates (or drop /h/ after sonorants) word-initially. Consider the following examples:

Set (I).   /ghoṛ+á/   'horse'(m.sg)   >   [kòṛa]

        /nha/   'bathe'   >   [nà]

        /ghə̣r+a/   'pitcher'(m.sg)>   [kə̀ra]

        /dhol/   'drum'   >   [tòl]

        /lhaī/   'grace'   >   [lài]

The examples in set (I) indicate that historically, the low tone is independent of accent. The vowel immediately following voiced aspirates and sonorant + h was obligatorily assigned the low tone.

Synchronically, however, the low tone must be on the same syllable as the accent. Consider the following examples (where double underlining indicates the place of accent).

Set(II)   /dhəṛə̲k/   'throb'   [tə̣ṛə̲k]

        /bhənda̲r/   'storage'   [pəndə̲r]

In the case of kòṛa̲ 'horse' and kə̀ṛa̲ 'pitcher', of Set (I), the tone fails to occur on the second vowel which is stressed. This can be explained as the result of paradigm constraints on the shift of low tones to accented syllables (cf. also section 3.3 below).

1.3.2: Similarly, it is possible to formulate changes which deaspirate voiced aspirates and drop /h/, and which normally assign high tone to the preceding vowel in medial and final position.

Set(III)   /bəgghī/   'buggy'   [bə́ggī]

        /ənnha/   'blind'   [ə́nna]

        /rahī/   'passenger'   [rá ī]

        /məggh/   'pitcher'   [mə́g]

        /labh/   'profit'   [láb]

        /cah/   'desire'   [cá]

However, if the vowel following the voiced aspirates and h is stressed, it normally receives the low tone. Observe the following examples:

Set (IV)   non-causative   causative

/pərh/   'study'   [pə́ṛ]   [pəṛa̲]

/bUjjh/   'turn-off' [ˈbU̇jj]   [bUja̲]

1.3.3: According to Bloch (1925), these developments can be accounted
for in the following fashion. Since the segment /h/ is voiceless, it cannot
receive tone, whereas an accented vowel, being voiced, carries pitch. As a
consequence, the sequence h̲V̲ results in the low, rising tone. However, when
an accented vowel precedes /h/, the high-falling tone is realized, since
(again) the accented vowel has a higher pitch than h̲. Notice that in Bloch's
analysis, tone arises only on accented vowels.

1.3.4: Although Bloch's analysis can, by and large, account for the
data, it is incompatible with the insights offered by more recent theories
on the origination of tones, such as that of Maran 1971.

1.3.5: A more satisfactory explanation has to take into consideration
the by now well-established relationship between voicing and tone: voiced
consonants are generally associated with low tone, and voiceless ones with
high tone; cf. for instance Maran 1971 and Woo 1972.

On the basis of these insights, it is a priori possible to argue that
the Punjabi low tone occuring after h̲ (and original voiced aspirates) and
the high tone before it, can be accounted for by postulating an earlier stage
at which voiced /ɦ/ occurred initially, inducing following low tone, and
voiceless h̲ medially, inducing preceding high tone. However, such an analysis
is inadequate on two grounds: (i) To postulate unvoiced h̲ intervocalically
is phonetically counterintuitive; (ii) this analysis fails to explain why
low tone is realized a̲f̲t̲e̲r̲ h̲ in medial position.

An alternative analysis which posits original voiced /ɦ/ for all
environment can account for the attested tones more adequately.

Since the voiced /ɦ/ is [+ low tone], it will induce low or rising tone
on the following vowel (i.e., the low tone starts low because of the /ɦ/
and rises because of the following vowel):

$$
\begin{matrix}
ɦ & V \\
\begin{bmatrix} + \text{ voice} \\ + \text{ low} \\ - \text{ voc} \end{bmatrix} & \begin{bmatrix} + \text{ voice} \\ + \text{ voc} \end{bmatrix}
\end{matrix}
$$
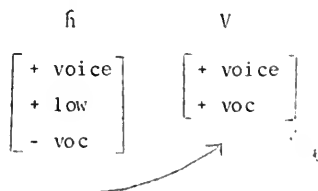
However, in medial/final position, since /ɦ/ is preceded by a vowel, the
tone starts high (because of the vowel) and falls, since /ɦ/ is [+ low].

Thus, a high or falling tone is realized in such an environment:

$$
\overset{\text{V}}{\begin{bmatrix} + \text{ voice} \\ + \text{ voc} \end{bmatrix}} \qquad \overset{\hat{\text{f}}}{\begin{bmatrix} + \text{ voice} \\ + \text{ low} \\ - \text{ voc} \end{bmatrix}}
$$
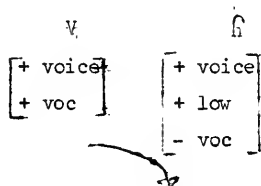
1.3.6: Keeping in mind these natural phonetic developments, it is now possible to trace the historical development of Punjabi tone through four stages and to thus ʳrelate this development with other developments involving the voiced aspirates and h in the neighboring Indo-Aryan dialects.

Stage I represents a stage of allophonic development of tones. At this stage, in the dialect area of Punjabi and Pahari, the voiced aspirates and h were voiced in all environments. Consequently, the low or rising tone was realized on following vowels and the high or falling tone was induced on preceding vowels. Some of the Western Pahari dialects have remained at this stage, since tones are still allophonic in these dialects.

Stage II is characterized by a change which devoiced the Indo-Aryan aspirates and ɦ in initial environment in a large dialect area, including not only Punjabi and Pahari, but also Hindi (where initially, the voiced aspirates are phonetically lax voiceless aspirated stops, and where initial h is voiceless). As the result of this devoicing, the low tone following initial 'voiced' aspirates and ɦ became unpredictable, since the phonetically voiceless articulation of these segments would predict high tone. On the other hand, the tones were still recoverable from voiced aspirates and h in medial position. This is the stage at which some Pahari dialects stopped in their development. In short, the following phonological situation emerged.

$$
\#\quad \underset{\circ}{b}\ \ h\ \ \overset{\vee}{V} \qquad \overset{\vee}{V}\ b\ \hat{\text{f}}\left\{ \begin{matrix} \text{V} \\ \cdot \\ \# \end{matrix} \right\} \bigg/ \quad \text{V}\ \ b\ \ \hat{\text{f}}\ \ \overset{\vee}{V}
$$
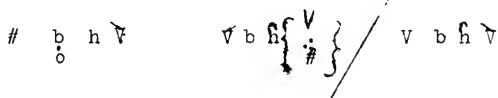
Stage III is characterized by a development shared by Punjabi, Kashmiri, and some of the Pahari dialects, namely a process of deaspiration affecting the old voiced aspirates. This was accompanied by a loss of

voiced /ɦ/ (in non-initial environments). These developments rendered the
tones in Punjabi (and some of the Pahari dialects) unpredictable in all
positions. Thus, the following phonological situation prevailed at this
stage.

$$
\# \left\{ \begin{matrix} (b) \\ \underset{o}{p} \\ ɦ \end{matrix} \right\} \quad \acute{\mathsf{V}} \qquad\qquad \acute{\mathsf{V}}\ (b) \left\{ \begin{matrix} \mathbf{V} \\ \# \end{matrix} \right\} \Bigg/ \quad \grave{}\ (b)\ \grave{\mathsf{V}}
$$

Note that since Kashmiri had not participated in the developments of stage I
and II, in this dialect, the deaspiration process resulted in the actually
attested <u>voiced</u> unaspirated stops, found in <u>all</u> environments, cf. the
following examples.

/ghora/ 'horse' : /gur/
/jhīl/   'lake'   : /jīl/
/dhotī/ 'dhati/saree' : /dūt'/
/gəmbhīr/ 'serious' : /gəmbīr/

    <u>Stage IV</u> represents a slight phonetic adjustment in Punjabi: The initial
voiceless lax aspirated stops had, by deaspiration, resulted in voiceless
lax unaspirated stops (e.g. bh > ḅ # ___) The resulting, very rich,
unaspirated stop system (p: ḅ: b) then apparently was simplified by the
merger of the voiceless lax stops (ḅ etc.) with the corresponding voiceless
tense stops (p etc.).

    1.3.7: The hypothesis developed in the preceding section thus not only
provides for a principled phonetic explanation of Punjabi tones.[3] It also
accounts for the 'aberrant' developments in some of the Pahari dialects (as
more archaic stages in the same general development). And it relates these
developments to other, more general phenomena found also in neighboring
Indo-Aryan dialects, namely the voiceless (lax) character of initial 'voiced'
aspirates and <u>h</u> in Hindi, and the deaspiration of the voiced aspirates in
Kashmiri.

    2.1: In addition to the changes discussed so far, it is necessary to
assume a change which shifts low tone from (initial) unaccented syllables to

following accented syllables;cf. Set II in section 1.3.1 above.

2.2: Accent plays a role also in the case of original medial voiced aspirates or ḥ. As indicated in section 1.3.2, there is a tendency to assign tone to the syllable preceding such a segment only if that syllable is accented. Otherwise, the <u>following</u> syllable is accented.

However, this tendency is by no means as strong and regular as the tone shift tendency discussed in the preceding section. As a matter of fact, there is apparently a contrary, even stronger tendency, namely to always place the high tone on the vowel preceding the aspirate or ḥ, whether that vowel is accented or not. Compare the following examples:

/sʊbhav̱/   'nature'   >   [sʊ́bav̱]

/vədhaī̄/   'felicitations' > [və́daī̱]

/səhara/   'support' >   [sə́ṉrà]

/prəbhu/   'God'   >   [prə́bu]

Some words, in fact, may appear with both accentuations; cf. /nəhī̄/ 'no' > [nə́ī̱] or [nə́ī̄].

Whatever the explanation of these two opposite tendencies may be, however, it seems that in paradigms, the two different patterns produced by these tendencies are utilized to differentiate potential homonyms. cf. the following synchronic derivations.

/pərh+a̱/   'study + Past. ppl.'   →   [pə́ṟa̱]

/pərh+a̱/   'study + Caus. suffix'   →   [pəṟa̱]

That we are in fact dealing with disambiguating developments is shown by the synchronic derivation of yet another potential homonym:

/pərh+a̱/   'study + Past m.sg'   →   [pə́rIa]

Notice that the assignment of low tone to the causative suffix follows the general synchronic pattern of causative formation in Punjabi; cf. section 3.1 below.

2.3: An apparently recent phonetic development is the loss of tone sandhi.

Bailey (1915:IX) described Punjabi and Lahnda as having four tones: (1) high, (2) level, (3) deep (i.e. low), and (4) a combination of the first and third tone. Thus, according to him, tone sandhi takes place when the structural descriptions of both the low and the high tone developments are simultaneously satisfied, as in

/ḍhahī̄/   'knocked down(fem)'   >   [t̪ãi]

(Here the initial aspirate predicts a low toned a̰, while the following n̪
predicts a high toned a̰.)

However, it appears that since Bailey's time, tone (4) has merged with
the low tone: Later observers report only three tones, with low tone
occuring instead of Bailey's fourth tone: cf the following examples.

| /bhabhī/ | 'sister-in-law' | : [p�àbī] (Bahri 1972:242) |
| /ḍhũḍh/ | 'search' | : [t̪ṹn̪ḍ] (Sharma 1971:44) |

3: As the discussion in section 2.2 has shown, some of the phonetic
changes so far discussed clearly have become morphologized. This is hardly
surprising, considering that tone became phonetically unpredictable at the
fairly early stage II. Other morphologizations include the following

3.1: Causatives of roots with high tone synchronically always lose
that tone and have a low tone on the causative suffix; cf. the following
correspondences.

		First Caus.	2nd Caus.
/pɔ́rh/	'study'	pə̀ṛà	pə̀ṛwà
/bŪjj/	'turn-off'	bŪjà	bŪjwà

3.2: All mid tone stems get the high tone in the imperative ordinary
plural, the Hortative 2nd plural, and the future tense forms. (That is,
these forms act as if they once had a medial h.)

stem		imp. ord. pl.	Hor. 2nd. pl.	future
/pa/	'to put on'	páo	páo	páuŋga
/lɔ̀e/	'to take'	lɔ́wo	lɔ́wo	lɔ́waŋge

3.3: In section 1.3.1, the examples in Set (I) indicated that
historically the low tone is assigned to a vowel immediately following the
voiced aspirates and (sonorant) + h. The data presented in set (II)
demonstrated that synchronically, however, the low tone must fall on the
same syllable as the accent. However, examples such as kɔ̀ra 'pitcher' and
kòra 'horse' cannot be accounted for by such a synchronic development. Since
in examples such as [kɔ̀ra] and [kòra] the accented vowel /a/ is a nominal
masc.sg. marker, these exceptions can be explained as the result of nominal
paradigm constraint on the shift of low tones to accented syllables;
i.e. the shift of low tones fails to operate across nominal morpheme boundaries.

4: Since the tones developed in Punjabi as a consequence of regular
sound change, the question arises whether in the synchronic grammar of Punjabi,

tones should be represented at the level of underlying representation or
whether they should be derived by a set of rules in terms of underlying
voiced aspirates or h, comparable to their derivation in the diachronic
grammar of Punjabi. In what follows, I will examine the issues and conclude
that tones have to be posited in the underlying representation of the
synchronic grammar of Punjabi.

4.1: The following facts favor the 'derivational' hypothesis. It
seems that tones are predictable and native speakers of Punjabi derive
them by a set of internalized tone assignment rules:

(1) Even the uneducated speaker, when he reads his sacred text,
Ādi Granth, which is written in Medieval Punjabi and in the Grumukhī
script, assigns tones to graphemes such as voiced aspirates.

(2) If those uneducated people who have never visited Hindi-speaking
areas are given Hindi words with a voiced aspirate, they automatically
assign tones to them.

(3) Proper names, such as my last name, are pronounced with
voiceless unaspirated stops and with the low tone on the following vowel
(such as [pàtia] for /bhatia/) in the speech of uneducated Punjabi speakers.
On the other hand, if any uneducated speaker of Punjabi is put into a
Hindi-speaking environment, he can derive the Hindi cognates of the
corresponding Punjabi words. (Code - switching with Hindi is very common
among Punjabis, since Hindi has a higher status.)

The above facts suggest that somehow the speaker of modern Punjabi is
familiar with the derivational history of his lexicon and assigns tones to
a lexical item which does not have tone. The underlying reasons for such
a process can be linguistic or non-linguistic (e.g. religion, the
recitation of Ādi Granth, etc.). Also, they suggest that the tone-
assignment rules seem to have some psychological reality for the speakers
of Punjabi. Thus, an analysis which does not synchronically derive tones
may be considered to fail to capture a significant generalization of the
language and the psychological reality of tone rules in the synchronic
grammar of Punjabi. Also, it will fail to account for the relationship
between the orthography and the pronunciation.

4.2: On the other hand, it is not certain that the above facts require
the assumption of a 'derived' status for the Punjabi tones.

(1) It can be argued that when an uneducated Punjabi reads his

sacred text, he substitutes tones for voiced aspirates since he is familiar
with the synchronic pronunciation. Such a situation can be compared with
English. For example, an English speaker knows that the k in knife is silent.

(2)   the fact that a Punjabi speaker assigns tones to Hindi words can
be explained by 'etymological' nativization. The native speakers of
Punjabi observes pattern such as the following in the common lexicon of
Hindi and Punjabi. The correspondence between Hindi bhV and Punjabi pV̀
in inherited words enables the native speaker to transfer the pattern to other,
non-inherited words, leading to the substitution of Hindi bhV for Punjabi
pV̀ (or vice versa). The generalization of this pattern sometimes leads
to ill-formed outputs of 'Punjabiized' Hindi. Thus,
words such as pəndā̀r 'storage' are pronounced as pə̀ndhar in Hindi
by Punjabi speakers, rather than the correct hindi form bhə̀ndar.

(3)   The voiced aspirates never appear on the surface, and thus,
postulating them at the underlying level would be a highly abstract analysis.

4.3:   What cinches the argument against the 'derivational' status of
Punjabi tone is the fact noted in sections 2.2.2 and 3.1-3 above, namely
that tone has become morphologized and thus is no longer predictable in
terms of underlying aspiration or h.

Thus, tones have to be represented at the level of underlying
representation in the synchronic grammar of Punjabi.

5:   The following conclusions can be drawn from the above discussion:

(1)   Historically, tones were induced by voiced aspirates or voiced
[ɦ]. The low or rising tone was realized after it, and the high or falling
tone before it.

(2)   The unpredictable morphology and the non-occurrence of voiced
aspirates and medial h at the surface level constitute major arguments
against deriving tones by a set of synchronic rules. Thus, tones are a
part of the underlying representation.

(3)   Synchronically, tones usually fall on accented vowels. However,
this distribution is subject to paradigmatic and transparency constraints.

Footnotes

[1] I would like to thank Professor Michael Kenstowicz for his comments on an earlier draft of this paper. I am also indebted to Professor Hans H. Hock for his insightful comments and suggestions on this paper. But for the many hours of discussion with him, this paper would be much more imperfect than it is. My thanks are also due to R. Pandharipande and S. N. Sridhar for their helpful suggestions.

[2] Note, however, that there is some disagreement concerning the phonetic characterization of Punjabi tones. The following table presents the various views on this subject.

Low Tone	
Bailey (1915:IX)	'deep or low-rising'
Bahl (1957:143)	'The glide of this tone starts at a low level, falls down, and rises to the mid level'
Gill (1960:11)	'low onset followed by a higher pitch rising to mid level'
Sampat (1964:110)	'rising tone in the beginning of utterance, falls slightly, and then rises'
Sethi (1971:2)	'on a rising-falling tone syllable, pitch rises from low to mid level and then there is a fall'
Bahri (1972:xviii)	'/ˇ/ is marked by falling pitch contour from a high level to a low level.

High Tone	
Bailey (1915:IX)	'high-or rising-falling'
Bahl (1957:145)	'starts at about mid level, rises high, and falls down'
Gill (1960:11)	'rising onset followed by the same pitch /ˊ/.'
Sampat (1964:110)	'begins at a higher value...falls off steeply'
Sethi (1971:2)	'on a falling tone syllable, the pitch falls from high to mid level.'
Bahri (1972:xviii)	/ˆ/ the production of high tone is marked by its high-rising falling-rising pitch contour.

[3] As noted in the preceding footnote, there is some disagreement on the phonetic nature of Punjabi tones. It seems that two conflicting patterns are currently found in the production of the low and the high tone. In one dialect (D_1), the low tone is characterized by a low-rising pitch and the high tone by high-falling pitch. Most linguists subscribe to this characterization of Punjabi tone. However, there is another tonal dialect (D_2). In D_2, the low tone starts high and falls,

whereas the high tone starts low and rises. Bahri subscribes to this phonetic characterization of Punjabi. Also my own dialect of Punjabi seems to belong to this dialect.

Historically, D_1 no doubt presents the oldest tonal characteristics, whereas D_2 represents a new pattern which started at Stage II. At this stage in D_2, the voiced aspirates and h̲ apparently were reanalyzed as unvoiced in all environments. Since voiceless segments are [+ high], a high or falling tone was realized after them, and a low or rising tone before them.

References

Arun, V. B. 1961. A comparative phonology of Hindi and Punjabi. Hoshiarpur: Punjabi Sahitya Akademi.

Bahl, K. C. 1957a. Tones in Punjabi. Indian Linguistics 17.139-47.

_____. 1957b. A note on Western Punjabi (Lahnda). IL 18.30-41.

Bahri, U. S. 1972. An introductory course in spoken Punjabi. New Delhi: Bahri Publications.

Bailey, T. G. 1915. Linguistic studies from the Himalayas. London: The Royal Asiatic Society.

Bloch, J. 1925. L'intonation en Penjabi: une variante asiatique de la loide Verner. Mélanges linguistiques offerts à M. J. Vendryes, 57-67 (Collection linguistique de la Société de linguistique de Paris, 17.) Paris: Champion.

Gill, H. S. 1960. Punjabi tonemics. Anthropological Linguistics 2:6. 11-18.

_____. and H. A. Gleason. 1963. A reference grammar of Panjabi. Connecticut: The Hartford Seminary Foundation.

Jain, B. D. 1934. A phonology of Punjabi and a Ludhiani phonetic reader. Lahore, Pakistan.

Maran, L. R. 1971. Tones in Burmese and Jingpho. Ph.D. dissertation. Urbana: University of Illinois.

Sampat, K. S. 1964. Tonal structure of Majhi. IL 25.106-110.

Sethi, J. 1971. Intonation of statements and questions in Punjabi (monograph 6.) Hyderabad, India: CIL.

Sharma, D. D. 1971. Syllabic structure of Hindi and Punjabi. Chandigarh: Punjab University.

Woo, N. 1972. Prosody and phonology. Bloomington: Indiana University Linguistics Club.

THE DIACHRONIC DEVELOPMENT OF NASAL DELETION IN OLUTSOOTSO

Gerry Dalgish

1. Introduction. This paper discusses the historical development of a rule
deleting nasals in the OluTsootso dialect of (Olu)Luhya, a Bantu language of
Kenya.[1] The discussion is based largely on evidence from internally
reconstructed historical developments, although the comparative data from
Guthrie (1971,passim) is also cited. I shall first establish the relative
chronology of certain nasal interactions and other sound changes. I shall
then trace the extension of the rule of nasal deletion to certain roots, and
demonstrate that this extension is a relatively recent development. We shall
find that the rule is now conditioned partly in terms of morphological
categories; its failure to apply in one such category (for certain roots)
leads to an interesting discussion and hypothesis concerning the theory of
markedness. The extension of this rule into Swahili loan words leads to
certain complications which are discussed. Finally, a summary of the findings
is presented in an historical scenario describing the diachronic development
of the nasal deletion rule vis-a-vis other historical rules.

2.1. The rule of nasal deletion applies regularly and without exception
when the voiceless fricatives f,s,sh, and x follow nasal prefixes:

/iN-fula/	--> ifula	'rain'
/N-fiimb-a/	--> fiimbá	'Cover me'
/tsiN-siche/	--> tsiisiche[2]	'locusts'
/eN-seen-ng-a/	--> eseenaanga[3]	'I trample'
/N-shi-e-shi-no/	--> shieshino	'It (class 7)[4] is it'
/N-xa-a-xa-no/	--> xaaxano	'It (cl.12) is it'

There is some evidence from internal reconstruction showing that these
fricatives may not be original proto-consonants. Archaic forms and synchronic
phonotactics suggest that these elements were derived from stops, and there
is corroborating evidence from Guthrie (1971:passim) who does not postulate
these fricatives for the proto language.[5] Obviously, therefore, nasal
deletion could not have existed at the proto-stage in its present form. We
can assume that fairly soon after the proto-stage, these consonants did
appear, and that the nasal deletion process then applied. This is supported
by the fact that the rule is completely regular when these consonants follow
nasals, having had time to work through the language completely. This will

contrast with the circumstances surrounding certain other consonants and
nasal deletion, which are discussed below.

3.1. We shall next consider h-initial roots when prefixed by nasals. The
following h-initial roots surface as b-initial when a nasal precedes:

/N-heeng-a/	--> mbeengá	'Look at me'
/eN-hon-ng-i-a/	--> emboniinjia	'I save'
/N-huuts-á/	--> mbuutsá	'Fan me'
/iN-halaBa/	--> imbalaBa	'Brave (cl.9)'

Since a h-->b/N___ rule does not seem very plausible on phonetic grounds,
one would immediately look to the historical situation for an explanation. A
likely candidate for the historical root-initial segment of these roots would
seem to be *p, since a rule of nasal voicing (which still exists) would produce
b when a nasal precedes. The synchronic phonotactics support this proposal,
because p is found in relatively few forms, having a very low functional load,
while h is not so limited. Thus *p as the historical source of h is motivated
by the evidence from internal reconstruction fairly well.[6]

3.2. However, what can also happen is that nasal prefixes are deleted before
h-initial roots, as the following examples show:

/N-heeng-á/	--> heengá	'Look at me'
/eN-haamb-ng-a/	--> ehaambaanga	'I catch
/N-hey-el-á/	--> heyelá	'Adulterate for me'
/N-ha-a-ha-no/	--> haahano	'It (cl.16) is it'

Nasal deletion may apply whenever N precedes h, while the h-->b/N___ rule may
apply except when homophony would result[7]. In most cases, then, either rule
could apply when nasals precede h.

3.3. This situation finds a natural historical explanation if we consider
the following points:

(a) h, a fricative element, would naturally be expected to condition
nasal deletion, which regularly applies when other (voiceless) fricatives
follow nasals;

(b)On the other hand, historical *p would not be expected to condition
nasal deletion in OluTsootso[8], since *p is a non-continuant element. It is
only after *p became h that nasal deletion could logically be expected to apply;

(c) forms with mb from /N-h/ are then residues from an older situation

in which *p alternated with b after a nasal.

(d) Note that this development (in which nasal deletion optionally applies when h-initial roots follow nasals) differs from the situation discussed in section 2.1., where the voiceless fricatives regularly condition nasal deletion. Since we have assumed that the creation of the voiceless fricatives occured fairly soon after the proto-stage because of the regularity of nasal deletion, we can now reason that the change of *p to h must have occured later than the creation of f, s, sh, and x. This would explain why a fair number of mb forms (from /N-h/) exist, whereas only one relic form of this type can be found involving a nasal prefix and a voiceless fricative (cf. footnote 5).

Thus, forms in which the nasals are deleted must be more modern than forms in which mb surfaces from synchronic /N-h/. The above evidence shows that the rule of nasal deletion must have been extended to these h-initial roots after the change of *p to h.

4. In this section I will discuss the evidence that the rule of nasal deletion is being extended to apply when nasals precede y and r-initial roots. For the purposes of exposition, I shall discuss first the nasal interactions for each group of roots.

4.1. When y-initial roots are preceded by nasals, surface nz or ñ may appear, as in the following:

/iN-yofu/	--> inzofu	'elephant'
/tsiN-yuundo/	--> tsiiñuundo	'hammers'
/iN-yiinda/	--> iñiinda	'rich(cl.9)'
/eN-yaBil-ng-a/	--> enzaBilaanga	'I bury'
/N-yoomb-á/	--> ñoombá	'Surpass me'

As the above examples suggest, ñ appears when a nasal cluster is in the syllable following y; otherwise, nz appears when a nasal prefix precedes.[9]

4.2. When r-initial roots are preceded by a nasal, a rule of nasal hardening may apply, and r becomes d:

/iN-raBu/	--> indaBu	'pot'
/tsiN-rutsu/	--> tsiindutsu	'eagles'
/iN-rechelefu/	--> indechelefu	'attentive(cl.9)'
/eN-rem-ng-a/	--> endemaanga	'I cut'
/N-ri-i-s-i-á/	--> ndiisíá	'Frighten me'

4.3. However, what may also happen is that the rule of nasal deletion may apply in cases where y̲ and r̲-initial roots follow nasal prefixes[10]:

(a) y̲-initial roots :

/iN-yiinda/	--→ iyiinda	'rich(cl.9)'
/tsiN-yu/	--→ tsiiyu	'warm(cl.10)'
/eN-yaBil-ng-a/	--→ eyaBilaanga	'I bury'
/N-yoomb-á/	--→ yoombá	'Surpass me'

(b) r̲-initial roots:

/iN-rechelefu/	--→ irechelefu	'attentive (cl.9)'
/tsiN-raambi/	--→ tsiiraambi	'tall (cl.10)'
/eN-rem-ng-a/	--→ eremaanga	'I cut'
/N-ri-i-s-i-á/	--→ riisiá	'Frighten me'

4.4. Once again the question arises as to the relative antiquity of the nasal processes. It will be the purpose of the following sections to determine this, relying heavily on evidence from internal reconstruction. In section 4.4.1., y̲-initial roots will be discussed; r̲-initial roots are examined in section 4.4.2.

4.4.1. As I hope to have shown elsewhere (Dalgish 1974,1975a), the nz̲/n̄ alternations found when nasals precede y̲-initial roots parallel the nasal interactions appearing when vowel-initial roots are preceded by a nasal. The nasal of a nasal prefix appears as n̄ before vowel-initial roots if the first syllable of the root contains a nasal or nasal cluster; elsewhere it appears as nz̲. It is therefore logical to assume that these y̲-initial and vowel-initial roots had a common ancestor, *y, and that vowel-initial roots have lost the initial consonant.[11] Now, if both groups of roots descended from *y-initial roots, the rules producing nz̲/n̄ from /N-*y/ must have existed prior to the rule of *y-loss. This is simply because *y is the only segment which would have produced the nz̲/n̄ forms. After the rule of *y-loss, some roots then continued as y̲-initial, and others became vowel-initial, while nz̲/n̄ alternations continued for both groups of roots when preceded by a nasal.

The rules producing nz̲/n̄ thus applied historically prior to the rule of *y-loss, prior to the development of phonemically distinct y̲-initial and vowel-initial roots, and thus apply to both types of roots. On the other hand, nasal deletion applies only when y̲-initial roots follow nasal prefixes, and never when vowel-initial roots follow nasals. This development can easily be

explained if we propose that the rule of *y-loss applied before the rule
of nasal deletion began to affect nasals preceding y-initial roots. Thus,the
nasal deletion process (conditioned by y) is a more modern development than
the nasal interaction rules producing nz/n̄.

4.4.2. The evidence from nasal interactions with r-initial roots indicates
that nasal deletion is a more recent development. ..e have seen that surface
nd appears from /N-r/ as the consequence of nasal hardening. Note, however,
that surface nd·can also be from underlying /N-t/ as the consequence of a
nasal voicing process, widely attested in Bantu, and still found in CluTsoouso.
From this it can be inferred that r is historically from *t, and that surface
nd forms might be from earlier */N-t/. Note that this parallels the develop-
ment of h-initial roots, in that a voiced stop (b or d) is retained after
a nasal, while the original segment (*p or *t) has undergone a sound shift.

4.5. Thus, the forms with surface nasal clusters from underlying /N-h/, /N-y/,
and /N-r/ are the results of earlier phonological processes; forms in which
nasals are deleted must therefore be more modern. In addition, we would not
expect that the nasal deletion rule applied when the historical stops *p and
*t followed nasal prefixes. Rather, nasal deletion would apply only after
the stops had changed into the continuant elements h and r.

5. At this point it might be best to summarize what we have discovered so far.
We·have been able to establish the following historical rule interactions and
relative chronology:

    (a) nasal deletion followed the spirantization of the stops which created
f,s,sh, and x;

    (b) the spirantization of *p to h and *t to r followed the nasal
voicing rule (which created mb and nd sequences) and followed the spirantization
process discussed in (a);

    (c) the rules producing nz/n̄ from /N-*y/ must have preceded the rule
of *y-loss and the nasal deletion rule as it applies when y follows nasals;

    (d) the application of nasal deletion when y-,h-, and r-initial roots
follow nasal prefixes is a more recent development than any of the above.

6.   There is an interesting parallel development concerning y and r-initial
roots and nasal deletion. This is an unexpected restriction of the rule in
a certain morphological category. In section 4.3., examples were given in which

the rule of nasal deletion applied when y- and r-initial roots followed nasal
prefixes. The alert reader may have noticed that no nouns are included in those
examples. It so happens that noun roots beginning with y or r fail to
condition nasal deletion, whereas verbal and adjectival roots do condition the
rule. Consider the following nominal forms:

(a) y-initial:

/iN-yoxa/	--> inzoxa, *iyoxa	'snake'
/tsiN-yofu/	--> tsiinzofu,*tsiiyofu	'elephants'
/iN-yani/	--> iñani, *iyani	'baboon'
/tsiN-yuundo/--	--> tsiiñuundo,*tsiiyuundo	'hammers'

(b) r-initial:

| /iN-raBu/ | --> indaBu, *iraBu | 'pot' |
| /tsiN-rutsu/-- | --> tsiindutsu,*tsiirutsu | 'eagles' |

Notice that a purely phonological distinction cannot be maintained here,
because adjectival y- and r-initial roots, which are preceded by the same
prefixes /iN/ and /tsiN/ as nominal y- and r-initial roots, do optionally
condition nasal deletion, while nouns do not. Thus, the distinction must be
stated morphologically, stipulating that nasal deletion may optionally apply
when y- and r-initial verbal and adjectival roots follow nasals, but not when
nominal roots do so.

The fact that nasal deletion is limited in exactly the same way with
respect both to the y-initial roots and to the r-initial roots is quite
striking. Instead of merely stating the facts, by claiming that there are
morphological restrictions on the rule of nasal deletion, I would like to
attempt to formulate an explanation based on general principles, to account
for this phenomenon. The arguments and evidence leading to the explanation
are somewhat involved, and I request the reader's indulgence in dealing with
them.

6.1. The first thing we should do is examine more closely the morphological
categories involved. It so happens that the nominal y- and r-initial roots
which block the application of nasal deletion all surface as nouns of the 9/10
class with singular and plural prefixes /iN/ amd /tsiN/, respectively. Now,
the nasal interaction rules of OluTsootso often effectively neutralize the
underlying root-initial distinctions. This is illustrated below:

surface nasal (cluster)	underlying source	examples	
nz	/N-ts/	inzala	(</iN-tsala/)
		'hunger'	
	/N-y/	inzofu	(</iN-yofu/)
		'elephant'	
n̄	/N-n̄/	in̄ama	(</iN-n̄ama/)
		'meat'	
	/N-y/	in̄ani	(</iN-yani/)
		'baboon'	
nd	/N-l/	indaBushi	(</iN-laBushi/)
		'stick'	
	/N-t/	inda	(</iN-ta/)
		'stomach'	
	/N-r/	indutsu	(</iN-rutsu/)
		'eagle'	

Since surface z and d occur only after nasals, we would not want to analyze nz or nd forms as underlying /N-z/ or /N-d/. In that case, however, it is impossible to unambiguously determine the underlying root-initial segments on the basis of the evidence of the surface forms nz, n̄ and nd which appear in the normal singular and plural class 9/10 forms. In order to determine the underlying root-initial segment of these forms, recourse must rather be made to the diminutive or augmentative forms, because the prefixes of these classes are non-nasal. Thus, the diminutive singular forms (cl.12) of the 9/10 class nouns cited above are as follows:

inzala	'hunger'	axa-tsala	'small hunger'
inzofu	'elephant'	axa-yofu	'small elephant'
in̄ama	'meat'	axa-n̄ama	'small meat'
in̄ani	'baboon'	axa-yani	'small baboon'
indaBushi	'stick'	axa-laBushi	'small stick'
inda	'stomach'	axa-ta	'"tummy"'
indutsu	'eagle'	axa-rutsu	'small eagle'

Thus, the diminutive forms allow the underlying root-initial segments to surface without being neutralized by the various nasal interactions.

6.2. We shall next take note of certain markedness considerations pertaining

to the nouns we are discussing. Observe that the diminutive and augmentative forms are semantically marked categories, whereas the class 9/10 singular and plural forms represent the unmarked, "nomal" forms. This means that the semantically unmarked forms surface with nz, n̄, and nd, that is, forms in which underlying distinctions have been neutralized by morphophonemic rule interactions (involving nasals).

Now it has been proposed that there is a tendency for speakers to analyze the semantically unmarked forms as morphophonemic base forms (Vennemann 1972). If there is such a tendency, then speakers of OluTsootso should attempt to analyze the class 9/10 forms (the semantically unmarked forms) as the base forms for morphophonemic processes. But we have just seen that the class 9/10 forms are actually derived morphophonemically, and are not in fact "base" forms. Thus, the tendency to analyze semantically unmarked forms as the base forms for morphophonemic processes conflicts with the evidence of the actual morphophonemic analysis in these cases.

6.3. What I would like to propose is that it is this conflict which is responsible for the failure of nasal deletion to apply when these 9/10 class nominal forms are constructed. Since the semantically unmarked forms surface with nz, n, or nd in the 9/10 class, speakers might be tempted to analyze these as (1) morphophonemic base forms (because they are semantically unmarked) and (2) as, perhaps, z, n̄, or d-initial roots; that is, as if they were from /N-z/, /N-n̄/, and /N-d/.[12]

If speakers do attempt such an analysis, it is easy to see why nasal deletion would not apply. The speaker's attempted analysis of the z, n̄, and d-initial forms as being "basic" for morphophonemic processes contradicts the phonological analysis, and in a sense obscures the fact that the roots involved are actually y and r-initial. So, if an analysis of these roots as y- or r-initial is inhibited by these facts, then of course it becomes more difficult to identify the conditioning factors (y and r) for the nasal deletion process. And if the conditioning factors cannot be identified, then the rule would not be expected to apply.

It should be pointed out that, contrary to fact, there is actually good reason to expect that nasal deletion should apply when these y and r-initial roots are preceded by nasals. This is because the application of the rule would actually serve to disambiguate between the various possible underlying sources

for surface nz/n̄ and nd. That is, if nasal deletion were to apply to forms like /iN-yofu/, /iN-yani/, and /iN-rutsu/, surface nz/n̄ would not result from underlying /N-y/ and /N-r/. Thus, some potential ambiguity would be eliminated in the surface forms of 9/10 class nouns, and there would be no need to obtain diminutive or augmentative forms to determine underlying root-initial segments.[13]

But as we have seen, nasal deletion does not apply when these y and r-initial nominal roots are preceded by nasals, despite the fact that its application would be motivated in order to avoid ambiguity. This seems to be further evidence then that speakers are avoiding an analysis of these roots as y and r-initial, because they would have excellent reason to apply nasal deletion if the roots did contain the conditioning elements y and r. 6.4. Notice then that these forms present a rather interesting problem. Current phonological theory would require us to analyze these forms as y or r-initial roots, because of the alternation evidence from the diminutive and augmentative forms, and because of the limited distribution of z and d. Yet we have seen that there is evidence suggesting that speakers are not analyzing these roots as y or r-initial, at least with respect to nasal deletion. Although it is easy enough to claim that nominal y and r-initial roots exceptionally do not condition nasal deletion, this is a non-explanatory and unsatisfying "solution". A more satisfactory explanation would be to claim that forms which are in conflict with the tendency to analyze semantically unmarked forms as morphophonemic base forms are derived by means of rather different processes than the conventional methods involving unambiguous underlying forms. To what degree this can be postulated as a universal tendency is a question which cannot be answered here; neither can the actual nature of the processes deriving these forms be adduced from this one example. 6.5. Turning now to verbal and adjectival forms, we find that there the situation with respect to markedness is completely different. y or r-initial roots would be neutralized by nasals only when the first person singular subject or object prefix precedes verbal roots. Since semantic markedness for verbs usually involves tense/aspectual distinctions, no subject or object prefix is significantly more marked than another. So, unmarked semantic forms are the non-neutralized base forms for morphophonemic processes, and no conflic

of the sort mentioned above for class 9/10 nouns exists.

Similar results obtain for adjectival roots. Since adjectival roots
can be preceded by all (semantically plausible) noun class prefixes, it is
again fairly easy to determine the underlying root-initial segment of a
particular adjective. And the root-initial segment can be determined without
recourse to the semantically marked categories such as the diminutive or
augmentative. Instead, an adjectival root can occur with any of the unmarked,
normal singular and plural prefixes of nouns of almost any class.

So, for verbs and adjectives, morphophonemic neutralization occurs
relatively infrequently, but more importantly, the morphophonemic neutrali-
zation that does occur does not involve significant interference with the
determination of base forms, and so no conflict with the markedness tendency
described above can occur.

Now, as we have seen in the case of verbal and adjectival formations,
nasal deletion can apply when y and r-initial roots are preceded by a nasal.
It does not seem to be a coincidence that the forms which present no difficulties
with respect to the markedness tendency are also those forms which do not pose
a problem with respect to nasal deletion. Conversely, those nominal forms which
do represent a conflict with respect to markedness are the very forms which
present a problem pertaining to the application of nasal deletion.
6.6. To summarize, the fact that nasal deletion is conditioned by y- and r-
initial verbal and adjectival roots, but not by class 9/10 nominal roots, can
be explained by considering the tendency to postulate semantically unmarked
forms as morphophonemic base forms. A conflict arises for y- and r-initial
nominal roots of the 9/10 class, because the semantically unmarked forms
are not in fact the morphophonemic base forms. This conflict interferes with
the determination of the root-initial segment as /y/ or /r/. And this
interference prevents the rule of nasal deletion from applying. For verbal
and adjectival roots, no such markedness conflicts occur, and nasal deletion
applies freely.
6.7.   This discussion additionally provides further evidence that nasal
deletion has only recently begun to apply before y and r-initial roots. If
this rule had appeared earlier than the rules producing nz/ñ and nd, we
might have expected it to affect nasals preceding nominal roots as easily as

verbal and adjectival roots. Instead, the nasal deletion rule has appeared
relatively late, and cannot affect the "entrenched" 9/10 class y and r-initial
roots, which have been subject to other nasal interaction rules.

7.   The rule of nasal deletion has apparently recently begun to affect the
nasal of the first person singular subject prefix /eN/ when the prefix is
followed by object prefixes. This occurs even though the initial consonant of
the object prefix may not normally condition nasal deletion.

7.1. Consider the following examples in which nasal deletion must apply
regularly:

/eN-shi-kul-ng-a/   --> eshikulaanga   'I buy it(cl.7)'
/eN-xa-kul-ng-a/   --> exakulaanga   'I buy it (cl.12)'
/eN-xu-yaanz-ng-a/ --> exuyaanzaanga   'I like you'

7.2. In the following examples, nasal deletion may optionally apply, although
the segments B, ch, l, ts and k which follow the nasal do not normally condition
nasal deletion:

/eN-Ba-xup-ng-a/   --> eBaxupaanga/embaxupaanga   'I beat them'
/eN-chixup-ng-a/   --> echixupaanga/enjixupaanga   'I beat them(cl.4)'
/eN-li-xup-ng-a/   --> elixupaanga/endixupaanga   'I beat it(cl.5)'
/eN-tsi-xup-ng-a/   --> etsixupaanga/enzixupaanga   'I beat them (cl.10)'
/eN-ka-xup-ng-a/   --> ekaxupaanga/engaxupaanga   'I beat them (cl.6)'

It appears then that nasal deletion may optionally apply before all obstruents
when the first person singular subject prefix precedes object prefixes.

7.3. Another point of interest is that the nasal deletion rule may not apply
when the l-initial tense/aspect prefixes directly follow /eN/:

/eN-li-xup-ng-a/   --> endixupaanga/*elixupaanga   'I will be beating'
/eN-la-xup-ng-a/   --> endaxupaanga/*elaxupaanga   'I am (now) beating'

Note that /li/ the distant future marker does not condition nasal deletion,
whereas /li/ the class 5 object marker (cf.7.2 above) does optionally
condition the rule. Thus, the nasal deletion rule must specifyt that only
object prefixes may condition the rule, and not tense infixes, even though both
prefixes may be phonologically identical. Thus, a high degree of
morphologization has crept into the specification of the nasal deletion rule.

8.   There is an interesting development concerning loan words and nasal
deletion that merits some discussion. Nouns which are borrowed from Swahili
into the 9/10 class in OluTsootso show evidence of a process of nasal deletion

which is far more general than the process we have been discussing, and which presents certain problems regarding rule ordering.

8.1. The following loan words from Swahili can be shown to be members of the 9/10 class in OluTsootso by virtue of the fact that these nouns require class 9/10 concordial agreement markers in all relevant morphological categories. It would therefore be pointless to consider these nouns as comprising a separate noun class. Notice now, that, however, the nasals of the class 9/10 prefixes have obviously been deleted in these loan words, although the initial consonants of some of the roots should not normally condition nasal deletion:

Swahili source	OluTsootso sg. and pl.	Gloss
barafu	ibarafu	ice
chai	ichai/tsichai	tea/-s
chela	ichela/tsichela[14]	jail/-s
kalamu	ikalaamu/tsikalaamu	pen/-s
mesa	imesa/tsimesa [14]	table/-s
bendera	ipeendera/tsipeendera	flag/-s
simu	isiimu/tsisiimu	telegram/-s
taa	itaha/tsitaha	lamp/-s

Notice that in these examples, consonants like b̲, p̲, ch̲, k̲ and t̲ are conditioning nasal deletion, whereas elsewhere in the language, this would never occur before roots (nasal voicing would apply instead). Apparently, loan words must be marked lexically as conditioning nasal deletion, no matter what the root-initial consonant is.

Of further interest is the length of the vowel of the class 10 prefix /tsiN/ in these examples. As the examples of native words in preceding sections show, the surface vowel of this prefix is typically long. Thus, /tsiN-siche/--> tsiisiche, 'locusts'. This can be shown to be the result of the rule of prenasal cluster lengthening (PNCL), which is ordered prior to nasal deletion (cf. footnote 2). Thus, /tsiN-siche/ becomes intermediate /tsiiN-siche/ by PNCL, and then surfaces as tsiisiche after nasal deletion applies. But as the above examples show, in loan words the vowel of /tsiN/ is not lengthened: /tsiN-kalaamu/ --> tsikalaamu, *tsiikalaamu, 'pens'. Compare also /tsiN-siimu/--> tsisiimu, *tsiisiimu, 'telegrams'. This suggests that the nasal deletion process for loan words must be kept distinct from the nasal deletion process for native words [15].

8.2. A sociolinguistic motivation for the appearance of nasal deletion in these loan words suggests itself. When speakers overgeneralize the nasal deletion rule, and bypass the effects of PNCL, the effect is to (a) more closely approximate the pronunciation of thesource language Swahili, because the source items are therefore not affected by the (neutralizing) native rule of nasal voicing; (b) mark these forms as "unusual", since they do not conform to the regular rules or rule orderings of OluTsootso. Furthermore, it seems reasonable to believe that the ability to recognize and produce distinctions between native and borrowed words would enhance the status of the speaker.

8.3. For our purposes, it is enough to note that the nasal deletion process for loan words represents a further extension of the regular rule, which would not normally apply to nasals when stop or affricate-initial roots follow. Since loan words from Swahili and English are probably fairly recent acquisitions[16], it is reasonable to conclude that this extension of the nasal deletion process is also relatively recent.

9. The evidence and discussion from the preceding sections, based largely on internal reconstruction, leads to the following historical scenario of the development of the nasal deletion rule, and the relative chronology of certain other sound changes:

Stage I:[17]   (a) /CVC/ roots in the majority of forms

(b) nasal voicing and related rules account for /N-p/-$\rightarrow$m̲b̲, /N-t/-$\rightarrow$n̲d̲; /N-y/-$\rightarrow$ n̲z̲/ n̄.

(c) voiceless fricatives not yet created; nasal deletion probably does not exist.

Stage II: (a)Nasal deletion begins to apply as the voiceless fricatives f̲,s̲,sh̲ and x̲ are formed via spirantization (cf. footnote 5)

Stage III: (a) *y̲-loss rule enters the language, creating phonemically distinct y̲-initial and vowel-initial roots, while n̲z̲/n̄ alternations continue

(b) *p > h̲ and *t > r̲, while m̲b̲ and n̲d̲ (respectively) remain.

Stage IV: (a) Nasal deletion optionally begins to affect nasals prefixed to newly created h̲ and r̲-initial roots; eventually it spreads to y̲-initial roots

(b) nasal deletion does not affect the nasals preceding the

y- and r-initial roots of the 9/10 class

Stage V: Increased generalization of the nasal deletion rule results in:
(a) the nasal of the first person singular subject prefix is
deleted optionally before affricate-,liquid-, and stop-initial
object prefixes, but not before tense/aspectual prefixes
(b) loan words from Swahili in the 9/10 class condition a
special, highly generalized version of the nasal deletion
process, which may also account for the failure of PNCL to
affect the vowel of the class 10 prefix /tsiN/.

Footnotes

[1]The research leading to this discussion was made possible by an NDFL
Title VI Fellowship, which also provided funds for my informant, Mr. C. Tsuma,
a native speaker of OluTsootso. Thanks to the efforts of Dr. Victor Uchendu,
Director of the African Studies Program, this research began in the summer of
1974. OluTsootso is part of the Luhya "cluster", and is spoken in Guthrie's
Zone E.32 b, north and west of Lake Victoria.

[2]The vowel of the prefix /tsiN/ is lengthened by a rule of prenasal-
cluster lengthening (PNCL) which applies prior to the nasal deletion rule.
As the examples ifula (< /iN-fula/) and eseenaanga (< /eN-seen-ng-a/) show,
PNCL does not affect vowels in word-initial position. A discussion of this
problem, and of general vocalic constraints, is found in Dalgish 1975 b.

[3]A vowel copy process copies the vowel following /ng/ to the left. The
vowel is then lengthened by PNCL.

[4]Bantu languages are characterized by an elaborate system of concordial
agreement. The system involves a number of noun classes which govern agreement
processes on adjectives, subject and object prefixes, and in other categories.
These classes have been assigned class numbers in various Bantu languages, and
may often be used in pairs to indicate the singular and plural forms. In a
later discussion, I shall refer to "nouns of the 9/10 class", which actually
means "the singular and plural forms of nouns which have the prefixes and
concordial agreement associated with the classes numbered 9 and 10". The
abbreviated forms referring to these nouns and noun classes should present
no difficulties.

[5]An archaic form for xaaxano (< /N-xa-a-xa-no/) 'It (cl.12) is it' is
ngaaxano. The initial ng sequence is evidence that x is from *k, because /N-k/
does yield ng by a nasal voicing and assimilation process.
These fricatives are limited distributionally in the following ways:
there are very few s-final verb roots, and no sh- and f-final verb roots; in
an isolated example, f appears from B in the causative: /tiB-i/--> tiBi/tifi,
'cause to lose', while other B-final forms do not show a B/f alternation.

Guthrie postulates *p or *b as the source of f when the super-high vowels *i and *y follow. Similarly, s is derived from *t or *d when *i follows. *k is the source of x and sh; the latter appears before front vowels. There are of course some additional complexities in the historical development which do not however affect the points discussed above.

[6]Guthrie's *p does correspond to OluTsootso h in a large number of examples.

[7]When nasals are prefixed to β or p-initial roots, mb surfaces. The h-->b/N___ rule is blocked when the h-initial root is minimally distinct from a β-initial root:

/N-haamb-á/	'Catch me'	/N-βaamb-á/	'Sacrifice me'
--> haambá, *mbaambá		--> mbaambá	
/N-heelel-á/	'Breathe on me'	/N-βeel-el-á/	'Have pity on me'
--> heelelá,*mbeelelá		--> mbeelelá	

There are further complications which do not affect the points discussed. For further discussion, cf. Dalgish (under preparation).

[8]There is no evidence in OluTsootso to suggest that nasals are deleted before voiceless stops (of roots), but at least two Eastern languages, Swahili and Chi-Mwi:ni, do show evidence of such a rule.

[9]A dissimilation rule known as the Ganda Law simplifies certain morphophonemically derived nasal clusters in OluTsootso: /N-leer-á/-->ndeerá 'Bring me', but /N-liind-á/--> niindá, not *ndiindá, 'wait for me'. Similarly, /iN-yofu/--> inzofu, 'elephant', but /iN-yuundo/--> inuundo, not *inzuundo, 'hammer'.

[10]Nasal deletion must apply when r-initial verbal roots are preceded by a nasal if nasal hardening would produce an homophonous nasal form nd from /N-l/:

| /N-rek-á/ | 'Trap me' | /N-lek-á/ | 'Despise me' |
| --> reká, *ndeká | | --> ndeká | |

Nasal deletion does not apply before certain y-initial roots which surface with mb when a nasal precedes: /olu-yia/--> oluyia, people ; /tsiN-yia/ --> tsiimbia 'peoples, army'. This is discussed in Dalgish (under preparation,. Other restrictions on nasal deletion applying when y- and r-initial roots follow nasals are discussed later in this paper.

[11]It seems that *y was lost in root-initial position when short vowels followed, and either retained or re-inserted when long vowels followed. For further discussion, cf. Dalgish 1974, and Dalgish (under preparation).

[12]Still another possibility is that speakers might attempt to analyze these roots as nz-, ñ-, or nd-initial. However, nasal cluster-initial roots do not usually occur in the language, and are never found in verbal roots, or in the 9/10 class nominal forms where a nasal would precede. (The only two examples of nasal-cluster-initial roots are /ndu/, 'person', and /nji/, many', neither of which can be directly preceded by a nasal prefix). A problem for

this analysis would still remain because of the alternation evidence provided by the diminutive and augmentative forms, which do not surface with a nasal-cluster in root-initial position. Thus, these nz/n̄ and nd forms are probably not analyzed as nasal-cluster-initial roots.

[13]The ambiguity would still remain with respect to nd forms, which would then have only two possible sources: /N-t/ and /N-r/. At least this would be an improvement if a third source, /N-r/, were to be eliminated.

[14]The first example is probably ultimately from English 'jail'; the second is from Portugeuse bandeira, 'flag'. These words were probably borrowed into Swahili, and then into OluTsootso.

[15]One way to accomplish this would be to order the special rule of nasal deletion for loan words prior to PNCL.

[16]The fact that these loan words have resisted assimilation into the regular rules and rule orderings of OluTsootso seems to indicate that they have arrived relatively recently in the language. If they had been borrowed much earlier, we might have expected them to conform gradually to the phonological processes of the language more completely.

[17]Comparative evidence would show that this stage is Proto-Bantu.

Bibliography

Dalgish, Gerard M. 1974. "Arguments for a unified treatment of y-initial and vowel-initial roots in OluTsootso," Studies in the Linguistic Sciences 4:2; 76-90

Dalgish, 1975a. "Nasal interactions and Bantu vowel-initial roots; the morphological or phonological solution?" Proceedings of the Sixth Conference on African Linguistics. OSU WPL 20. 68-74.

DDalgish, 1975b. "On underlying and superficial constraints in OluTsootso," Papers from the Eleventh Regional Meeting of the Chicago Linguistics Society: 142-51.

Dalgish, (under preparation), The morphophonemics of OluTsootso:issues and implications. Doctoral dissertation, University of Illinois.

Guthrie, M. 1967-71. Comparative Bantu. 4 vols. Westmead, England, Gregg Press Ltd.

Venemann,T. 1972. "Rule inversion," Lingua 29: 209-42.

VARIABLE RULES IN THE LANGUAGE COMMUNITY

A STUDY OF LAX [u] IN ENGLISH

Wayne B. Dickerson

A major contribution to our understanding of language in society has come through the notion of systematic heterogeneity as expressed in a variable rule (Weinreich, Labov, and Herzog 1968). The linguistic and social components of a variable rule reflect the regularities in the link between language and society. For this reason, the rule is uniquely sociolinguistic.

In phonological research, the linguistic domain of a variable rule is most often the word class--a historical and pandialectal concept which defines as a unit all words sharing a particular phonological segment, referred to as a variable. In Labov's study of Martha's Vineyard, one variable was /aw/, as in house, out, round (Labov 1972).[1] The rule specifies the environments which are subject to variability, and often their relative effect on the variable. Occasionally, the linguistic domain of a variable rule cuts across word classes. A classic example of a diaclass rule is consonant cluster simplification. This rule specifies the environmental constraints on the deletion of word final /t/ and /d/ from their clusters, as in best, friend. The social domain of a variable rule is typically the speech community--a geographically and behaviorally defined unit consisting of all individuals who live in a certain area and share a similar interpretation of the social significance of the linguistic variables used among them (Labov 1971b:209). It is with reference to a particular speech community that factors in the rule such as social class, ethnic group, age, sex, style, are interpretable.

This paper is a study of the environments in which lax [u] (the lax high back rounded nucleus of foot, pull) may appear in English. On the one hand, certain environments are the loci of change in two word classes. On the other hand, certain environments are involved in a diaclass change. In part, then, the linguistic parameter of the variable rules is the word class. The social parameter, however, is not the speech community, but rather the language community, defined by Halliday (1968:140-141) as all

those 'who regard themselves as using the same language'. This is a global concept spanning many speech communities. The sociolinguistic model developed for speech community research is extended here to explore language-level variability. The data in which this variability appears was gathered in a principled way from lexicographical sources and represents the standardized language.

1.0 Gathering data in the language community

In many ways, the considerations involved in gathering language community data are the same as those involved in gathering speech community data. Attention is drawn in this section to methodological comparisons of the two approaches.

1.1. Establishing the data source. Sociolinguistic researchers try to achieve a high level of accountability in their studies. They do this, in part, by gathering data from the target community by means of defensible sampling procedures. In speech community studies, concern for accountability takes the analyst to members of the speech community as primary sources of data. In language community studies, direct sampling is also possible. But for the individual researcher it is impractical; the language community encompasses a large number of speech communities. The investigator does not ordinarily have at his disposal the kind of resources which accompany large-scale lexicographical operations. However, because lexicographers attempt to represent the language community in their report of usage, dictionaries provide the researcher with an indirect way to gather language community data. Even with this indirect source of data, the language community researcher can attain a high level of accountability; his corpus of data is replicable, and his analysis is testable.

For this study, six late-edition British and American dictionaries were used as resources. The dictionaries consulted were the American heritage dictionary of the English language, 1973 (AH), Webster's eighth new collegiate dictionary, 1974 (NC), Webster's new world dictionary of the American language, 1970 (NW), Random House dictionary of the English language, 1973 (RH), Funk and Wagnall's standard college dictionary, 1973 (SC), and The shorter Oxford dictionary, 1966 (SO).[2]

Since this study of the language community is based on lexicographical data, some comment is necessary about this source of data and about the variety of language it represents. In linguistic research, there is general skepticism about the value of dictionary data. This skepticism is not without foundation, for dictionaries are notoriously conservative reports. One source of conservatism has been the lexicographer's attempt to be prescriptive. In the past, more so than now, prescriptivism in lexicography has thrown dictionary reports into question. For example, lexicographers once based pronunciation information on how public orators felt words should be pronounced. This approach to lexicography is now beginning to give way to a more scientific approach. Linguistically sophisticated editors are using transcriptions of contemporary recordings and the findings of the Linguistic Atlas. Even among prescriptive dictionaries, multiple pronunciations for an entry are now commonplace. As Malmstrom (1958) showed in her study of prescriptive texts on English usage, when the texts are taken together, the full range of acceptable variation is present. So it is with dictionaries; their prescriptions are not all alike. Prescriptive and descriptive dictionaries collectively constitute a valuable data bank for the study of variability.

A second source of conservatism among dictionaries is the lexicographer's concern to report broadly accepted usage in the language community. Linguistic change, because it originates at the speech community level, cannot at the outset be called representative of language community usage. In time, perhaps, the innovations may become sufficiently widespread to support the claim of representativeness. At that time, and not before, such usage may be picked up and reported by lexicographers. The time which elapses between the innovation and the report makes dictionaries inherently conservative.

In short, a corpus based on pooled dictionary data will display variability despite prescriptivism, but, because variability is recorded in dictionaries only after it has spread throughout the language community, dictionary data does not represent the forefront of change. Nor should it, given the fact that the language variety being described is the pan-dialectal variety known as the standardized language. The term 'standardized' does not mean 'without variation' but rather 'codified',

'accepted by the community' (Stewart 1968:534; Ferguson 1968:31). This
study, then, is a status report on variables in the standardized language.
Although the normative variety of English is always changing as its
variability shows, the change is so far removed from its origin in the
speech community that every reader will be aware of speech community
variation which has not yet permeated the language community. Such
pioneering changes are topics for speech community research.

    1.2. Sampling the strata. The researcher's data is either a sample,
preferably random, or the entire population. In speech community work,
random sampling increases the likelihood of obtaining unbiased, repre-
sentative utterances from the various strata in the community. Labov
suggests that a pattern characteristic of a particular stratum will emerge
when the data of as few as five randomly selected individuals is pooled
(Labov 1969:737). Pooling tends to offset individual deviations and keeps
the focus on the community rather than on the individual.

    For language community research, dictionaries cannot offer the
investigator a random sample of data. However, the data from several
dictionaries, when used collectively, can offer him nearly the entire
population of target items found in the community. Thus, pooling data from
several dictionaries serves the interest of determining a total community
pattern. Not only does it insure a range of variability and counter-
balance the idiosyncrasies of individual sources, as mentioned above, but
it also assures comprehensive coverage of the topic.

    In a speech community sample, the strata typically included are, at
a minimum, social class and style (linguistic modifications responsive to
verbal task or social situation). In this language community study, the
same strata are included. More specifically, the usage of the educated
sector is being sampled.[3] It is, however, a usage which has become
standardized. Although dictionaries differ in their definitions of
standard usage, all consider their unmarked entries as acceptable in
educated speech. When at least three of the six dictionaries leave an
item unmarked, such an item is included in this study as standard
English. As for style, there is no evidence that the variables in
question are modified by situation of use. Accordingly, items

designated as informal or slang (and without regional qualifications) are
combined with the unlabeled items.

1.3. <u>Tapping the word class</u>. Given a source of data for standardized
educated usage, the researcher's next concern is to obtain from that
source the desired data: instances of the word class in usable frequencies.
For this study, the two word classes to be tapped have their historical
origins before Modern English. One class is ME tense (or long) /ō/,[4]
the other is ME lax (or short) /u/. Both of these classes happen to be
well represented in spelling.

For the first word class, Pyles (1964:171) traces the course of
change as follows. 'Middle English [o:], as in <u>ro(o)te</u> 'root', became
[u:]. Shortening of [u:] to [u] has occurred in <u>foot</u>, <u>good</u>, <u>book</u>, <u>look</u>,
<u>took</u>, and other words.' The raising of /ō/ resulted from the Great
Vowel Shift followed by the shift to [u]. To identify members of this
class, orthographic clues are helpful, as Pyles notes (1964:147): 'If
the Modern English sound is [u:], [U], or [ʌ], spelled <u>oo</u>, the Middle
English sound is [o:], as in, respectively, Modern English <u>food</u>, <u>foot</u>,
and <u>flood</u>, going back to Middle English [fo:de], [fo:t], and [flo:d].'

As for ME /u/, most of the word class members underwent a central-
izing shift to [ʌ] in Late Middle English and Early Modern English
(Nichols 1974, Chomsky and Halle 1968:263, 269). This word class is now
almost universally spelled with ⟨u⟩, as in <u>cut</u>, <u>put</u>, and pronounced
either [ʌ] or [u]. Specifically excluded is the class of words spelled
with ⟨u⟩ but pronounced [yūw] as in <u>cute</u>, <u>music</u>.

To this point, the two word classes have been identified historically;
how are they identified in Modern English? In present-day English, there
remains little if any evidence that the /ō/ → [ū] rule is productive; it
appears to have run its course. As a consequence, we have the Mod.E /ū/
word class. Similarly, in the case of historical /u/, there is no
evidence that the centralization process is still active.[5] The words
touched by the process form the Mod.E /ʌ/ word class, while those un-
touched by the process fall into the Mod.E /u/ word class.

English dictionaries contain the majority of words which fall into
these two classes. For the researcher who intends to use dictionaries

as a data source, a crucial question must be answered: Are all instances of the word classes equally acceptable for a language community study? The answer to this question must be, no. Although the language community analyst could ferret out and use every instance of a particular variable, he restricts his investigation to instances which provide unbiased data on the present-day language community. Certain instances of a variable must be omitted in order to counter several biases which would arise from the unprincipled use of dictionary resources.

The first bias to be avoided is that of region: word class members included in the study should be those held in common by the language community. One way to meet this condition is to include only items which are unmarked as to region. Thus, words designated as Scottish (e.g. brugh), Australian (e.g. goog), Anglo-Indian (e.g. goonda), British (e.g. bumph), or American (e.g. lunkhead), etc., are omitted. Proper names are also excluded, partly because of uncertain regional associations, and partly because of their uneven treatment from one dictionary to the next. In this connection, words derived from proper names are also omitted, e.g. Cushitic (cf. Cush). Another way to counter a regional bias which may arise out of lexicographical sampling procedures is to include only items which are attested in three or more of the six dictionaries.

A second bias to be avoided is that of obsolescence. Any item labeled in two or more dictionaries as archaic or obsolete is no longer representative of contemporary language community usage and is excluded, e.g. wood 'insane'.

A third bias to be avoided is that of weighting the frequency of items in a particular environment in favor of productive versus non-productive roots or stems. For example, the word bulb is included in the corpus but not bulbous, bulbar, and bulbil. In this way, the picture of language community behavior is not distorted by the accidental fact that a stem appears in a large number of derivatives. (This provision is qualified below.) By the same token, homophones from different (or questionably related) sources are preserved in the study. Thus, bull 'a kind of animal' from Anglo Saxon is entered, as well as bull 'papal

edict' from Latin. Homophones of this kind will be identified by subscripts, for example, $\underline{bull}_1$ and $\underline{bull}_2$.

In addition to gathering the right data, researchers are also interested in gathering enough data--enough tokens of the word class to provide a statistic which reliably reflects the progress of change in the relevant environments. Researchers in the speech community, however, differ from those in the language community in what they count as tokens and how they arrive at their figures.

The speech community investigator focuses on the number, rather than on the diversity, of instances. That is, he accepts for his frequency count the same item as many times as an informant uses it. The assumption on which this approach is based is that all word class members falling into a variable environment are potentially variable and equally likely to exhibit the full range of variants. The important statistic, then, is a proportion: the number of times a particular variant appears among all the words (unique or repeated) in which it might have appeared in a given environment.[6]

In language community work, the analyst uses a somewhat different statistic, namely, the proportion of unique words in an environment which fall into a given variant category (discussed below): categorically changed, categorically unchanged, or variably changed. To assure the uniqueness of words in the corpus, two tactics are employed. Not only are there no duplications in the data, but the repeated occurrence of productive roots is also restricted as mentioned above.[7]

1.4. Handling the variants. Analysis can begin only after the data representing the community is transcribed. A fine phonetic transcription is sometimes needed for variants in speech community studies, but in language community studies the dictionary transcription is adequate and requires at most only transliteration.

In order to avoid confusing the sound changes under study with other phonological effects, certain words are excluded from consideration. First, all cases of vowel reduction are deleted. Only variants which carry some degree of stress are retained. Thus, the transcription of pull is relevant for the analysis, but the transcription of the initial vowel in pullórum

is not. Second, instances of the variables before /r/ are also omitted,
e.g. poor. The postvocalic glide often has a diaclass laxing effect on
tense vowels. This effect is kept separate from influences which are
confined to a single word class.

From the transcription of individual words, the analyst constructs
a composite transcription reflecting the reports of all dictionaries used.
If for one word all six dictionaries report the same single variant, [uw],
[u], or [ʌ], the word is taken as invariant at the level of the standard
language. Where one or more of the dictionaries report multiple pronunci-
ations, or where the opinion of the six is somehow divided, the word can
be viewed with confidence as variable, [u ~ ʌ] or [u ~ uw], in the language
community. The example in (1) illustrates this simple evaluation pro-
cedure. For the purposes of this study, no distinction is made among
variable words between predominant variants and nonpredominant variants.
Thus, the order in which dictionaries list variants is irrelevant.

(1)

	AH	NC	NW	RH	SC	SO	Composite Transcription
pull	[u]	[u]	[u]	[u]	[u]	[u]	[u]
pulpit	[u~ʌ]	[u~ʌ]	[u~ʌ]	[u~ʌ]	[u]	[u]	[u~ʌ]
pulmonate	[u~ʌ]	[u~ʌ]	[ʌ~u]	[ʌ]	[ʌ]	[ʌ]	[u~ʌ]
pulp	[ʌ]	[ʌ]	[ʌ]	[ʌ]	[ʌ]	[ʌ]	[ʌ]

This treatment of variants requires a refinement of the earlier
condition that duplicated stems are eliminated. The refinement is simply
that if two derivationally related words have different composite
transcriptions, both words are retained in the study. Thus, bull 'papal
edict' is given as [u] by all dictionaries and is therefore invariant in
the language community; bulla 'seal on a bull' is given as variable,
[ʌ ~ u], in some dictionaries and invariant, [u], in others. It is there-
fore categorized as variable in the language community and included in the
study together with bull.

2.0 Analyzing language community data

In an attempt to make an exhaustive collection of lax [u] words
generally known in English and words having similar environmental
characteristics, a corpus of nearly 2000 words from the two word classes
under study was assembled according to the principles discussed above,
and each word was assigned a composite transcription. The analysis of
this data is presented in the following sections.

2.1 <u>Environmental decomposition of word classes</u>. According to the
speech community model followed here (Labov 1972), sound change occurs
in a word class by the gradual appearance of a variant pronunciation in
one environment and by its extension over time to other environments until
the process either is arrested or goes to completion by affecting the
entire word class. In this way, a word class having a single invariant
pronunciation is decomposed. If the process stops at some point or is
examined midcourse, some members of the word class will be found to have
one pronunciation and other members, another pronunciation. But if the
decomposition process goes its full course or is examined at its end, the
entire word class will have been reconstituted with a different
pronunciation.

The variable rule describes the change in two ways: (1) by identi-
fying for a particular time, place, and group the environments of a word
class in which a variant has appeared and (2) by identifying the degree
to which change has affected the words in each environment. Successive
samplings of the same group over time will allow the investigator to
chronicle the progress of change through the environments of the word class.
Two graphic illustrations of decomposition in progress can be found in
Labov 1971a:427 and 1972:120.

If the decomposition model is relevant to lax [u] at the language
community level, the words now categorically or variably pronounced [u]
should fall into discrete environments within their respective word classes.
Furthermore, the extent to which change has progressed in such environments
should be determinable. In the following sections, we will look at two
variable rules which differ radically in their productivity. On the one
hand, the variable laxing rule describes a presently ongoing change in

English. Its input is Mod.E /ū/. On the other hand, the variable
centralization rule describes a fossil in present-day English. Its input
was ME /u/. Although both rules provide an account for some recalcitrant
data in Modern English, certain crucial questions are raised: Are both
rules rules of Modern English? How does an inactive variable rule differ
from an active one? For answers, we begin with the variable laxing rule.

2.2. <u>Environments of [u] in the</u> Mod.E <u>/ū/ word class</u>. For Chomsky
and Halle (1968), Mod.E /ū/ is underlyingly /ō/. However, they provide
little discussion of how, derivationally, certain members of the /ō/ word
class become [u]. It is not surprising that their few suggestions support
Pyles' historical outline cited above, namely, /ō/ → [ū] → [u]. They adopt
this route in the derivation of <u>took</u> /tōk/, when they say (203, note 33)
'...the representation [tūwk] becomes [tuk] by a fairly general rule that
applies to [ūw] in various contexts, in particular __k, before rule (62).'
They repeat their suggestion on pages 209-210 for the word <u>foot</u>
'.../fōt/, which becomes [fūwt] by Diphthongization and Vowel Shift, then
[fut] in the manner described in note 33...'[8]

Chomsky and Halle, however, do not go beyond their footnote to
elaborate on the various contexts of this rule other than to suggest the
environment /__k/. This is a good beginning, as can be seen most clearly
by looking at the set of words in contemporary English which came from
ME /ō/. In (2)a is the set of words referred to by Chomsky and Halle; it
exhibits no variability. In (2)b is a second set, terminating in /t/ and
/d/, but displaying some variability as seen in (3)a. The words of (3)b
end in labials and are variable. A few of the ME /ō/ words ending in
labials but pronounced invariantly as [ūw] are listed in (4).

(2) [u]   a. book, brook, cook, forsook, hook, look, nook, rook,
                  shook, took

             b. foot, good, hood, stood

(3) [u ~ uw] a. root, soot
             b. broom, coop, groom, hoof, hoop, roof

(4) [ūw]   a. behoove, groove, scoop

During the ME period and since then, other words have been added to this word class. These come from many sources: Arabic (e.g. hookah), Dutch (e.g. sloop), French (e.g. booty), German (e.g. noodle), Hindi (e.g. loot), Kongo (e.g. goober), Yiddish (e.g. schnook), and elsewhere. The striking fact about these new words is that they are conforming to and extending the basic sound change pattern begun in Middle English. Specifically, words falling into environments which have not yet begun to move in the direction of [u] have become categorically [ūw]. However, words exhibiting the variable environments where change has begun are advancing toward [u] along with the older items. The continuing integration of foreign elements into the change pattern of this word class is evidence of the vitality of the laxing rule. Furthermore, it is possible to see how far change in the contemporary word class has progressed. Only a small number of environments are necessary to capture nearly the entire set of words. These environments are presented in the following discussion.

As mentioned above, one of the most commonly noted environments of lax [u] is /__k/, a [-ant, -cor] segment. But [u] may also occur before /p, b, f, v, m/, which are [+ant, -cor] segments. The words in (5) show that [u] may precede the full set of [-cor] segments permissible in English.

(5)   [u]   brook$_1$, brook$_2$, cook, cookie, hook, hooker, kookaburra, oomph, rook$_1$, rook$_2$, rook$_3$, shook$_1$, shook$_2$

    [u ~ ūw]   broom, cuckoo,^{9} coop, cooper, goober, gook$_1$, gook$_2$, gobbledegook, groom, hoof, hooka(h), hoop, hoopla, oops, roof, room

    [ūw]   behoove, croup, droop, goof, googly, googol, goop, group, groove, kook, proof, recoup, scoop, scroop, troop

As for the prevocalic segments, there are several possibilities apparent in (5). One of these is the absence of a segment before the vowel, as in oomph and oops. Another possibility is the class of [-ant] segments. The words in (5), then, have either [-seg] or [+cns, -ant] prevocalically, and [-cor] postvocalically.

As the list in (6) reveals, a third kind of prevocalic segment may pair with a postvocalic [-cor] segment. Besides [-seg] and [-ant],

prevocalic segments may also be [+ant]. There is, however, a constraint.
The [+ant] segments may not co-occur with the full class of postvocalic
[-cor] segments, but only with the velar portion, i.e. [-ant, -cor].

(6) [u]   book, forsook, look, nook, schnook, took
     [u ~ ūw]   boogie (-woogie), boogie (-man), snook$_1$, snook$_2$,
                 snooker, stook
     [ūw]   bazooka, spook

The two environments discussed to this point can be readily collapsed.
Since, prevocalically, [+ant]--a subset of [+cns]--is paired with post-
vocalic [-ant]--a subset of [-cor], angle brackets can capture this
coordination, as shown in (7). (Note that the use of angle brackets here
follows the general conventions of generative phonology and not those found
in Labov's rules, where angle brackets indicate variable constraints on
rule operation.)

(7)

$$/\bar{u}/ \rightarrow [u]_\phi \quad / \quad \left\{ \begin{bmatrix} +\text{cns} \\ \langle +\text{ant} \rangle \\ [-\text{seg}] \end{bmatrix} \right\} \underline{\hspace{1.5cm}} \begin{bmatrix} -\text{cor} \\ \langle -\text{ant} \rangle \end{bmatrix} \begin{matrix} \text{(i)} \\ \text{(ii)} \end{matrix}$$

Rule (7) is a variable rule as indicated by ϕ in the rule output.
Were it a categorical rule, the words in (5) and (6) listed as [ūw] and
also those listed as [u ~ ūw] would be called exceptional. For a variable
rule, however, these words are not exceptional. In two respects, they must
instead be called regular.

In the first place, when a sound change is in progress, we expect to
see evidence of an incomplete transition. The evidence, in this case, is
found in the set of [u ~ ūw] words and in the set of [ūw] words. Variable
words (like those under [u ~ ūw]) are not unusual in sound change. In fact,
without them, sound change cannot take place. In Labov's words (1966:318),
'variability itself is change.'

In the second place, when a sound change is in progress, we expect the
word class members to conform to a pattern of change which can be inter-
preted as progressive development. Such a pattern is highlighted in (8),

where the lists of (5) and (6) are converted into percentages to show the
degree of rule operation for different environments. If we look only at
the numbers of words in the [u] and [u ~ ūw] categories, the relative pro-
portion of [ūw] words to be expected in the two environments is predictable.
For example, in the [-ant, -cor] environment, the number of [ūw] words should
be equal to or less than the number of variable words. The actual numbers
of [ūw] words match this prediction. Because the words fit a pattern of
change interpretable in terms of gradual decomposition, these words are
not exceptions to the variable rule in (7).

(8)

$$\begin{bmatrix} -ant \\ -cor \end{bmatrix} \qquad \begin{bmatrix} +ant \\ -cor \end{bmatrix}$$

	(5)	(6)	(5)+(6)	(5)
[u]	60% (N=12)	43% (N=6)	53% (N=18)	4% (N=1)
[u ~ ūw]	25% (N=5)	43% (N=6)	32% (N=11)	46% (N=11)
[ūw]	15% (N=3)	14% (N=2)	15% (N=5)	50% (N=12)

Information such as is contained in (8) belongs properly to the
variable rule in order to describe the status of change at this time in
language history for this variety of English. By including in the rule
proportions of rule operation, we capture the variable character of the
variable rule. And by linking these proportions to a general stratum in
the language community, namely, the educated, we capture the sociolinguistic
character of the rule.

The first environment of [ū] in which [u] appears (Rule (7) above)
consists of postvocalic [-cor] segments only. The second environment
concerns the words in (9) which display only [+cor] segments postvocalically,
specifically, either /t/ or /d/. Interestingly, when the dental is voiced,
we find [-ant, -str] segments prevocalically. But when the dental is
voiceless, the prevocalic segment is [+ant, +str]. Following conventional
generative notations, paired alphas can be used in rule (10) to record
this fact.

(9)   [u]   foot, good, hood, -hood, could

     [u ~ ūw]   footle, hoodlum, soot

     [ūw]   zoot

(10)

$$/\bar{u}/ \rightarrow [u]_\phi \quad / \quad \begin{bmatrix} -voc \\ \alpha\ ant \\ \alpha\ str \end{bmatrix} \underline{\hspace{3cm}} \begin{bmatrix} +ant \\ +cor \\ -cont \\ -nas \\ -\alpha\ vce \end{bmatrix}$$

There are five other words ending in dentals which are pronounced categorically or variably with [u] but which do not fit the environment characterized in (10): root, should, stood, toots, and tootsie (baby talk for foot). They all have prevocalic [+cor] segments and may reflect an early, but short-lived expansion of the change effect beyond the context in (10).[10] Except for the variable word, root, there is no evidence of continued movement from [ūw] to [u] in this expanded environment. The words tootsie and toots must be excluded as evidence, since they may have an explanation outside of the decomposition process. Both seem to conform to the phonological characteristics of baby talk and lover's talk discussed by Ferguson (1964:105).

When we exclude words to be discussed below, there remains only one word belonging to the /ū/ word class which is not accounted for by either of the above contexts: bosom (OE bōsm). This is not surprising, because it was the postvocalic cluster and not the character of the pre- and post-vocalic consonants which caused the tense vowel to lax to [u].

To this point, the variability model, using dictionary-derived language-community data on pronunciation and word origin, has permitted a clear view of change in the /ū/ word class and the manner in which this change governs the integration of lexical borrowings into English. Quite a different picture will emerge in the following study of the ME /u/ word class.

2.3. Environments of [u] in the ME /u/ word class. The centralization of /u/ to [ʌ] during Late Middle English and Early Modern English

affected 99 percent of the word class. Evidence that this change occurred
by environmental decomposition is indirect: the existence of a set of [u]
and [u ~ ʌ] words from the ME /u/ word class fitting certain rather clearly
circumscribed contexts. Had the change been random, it is improbable
that such a well-defined set of words would have remained.

The claim of the decomposition model is that change is not random but
environmentally governed. At any one time in language history, variable
rules can capture the progress of change passing through the governing
environments. Thus, the rules describe the transition between a relatively
homogeneous word class before change begins and a relatively homogeneous
word class after change is complete. The transition is gradual, as
natural classes of sounds are broken down and reconstituted. Consequently,
variable rules are often complex, reflecting the complex process of
decomposition and recomposition.

So it is with change in the ME /u/ word class. At this point in
English language history we find only a few major environments which never
followed the dominant centralizing movement. Within these environments,
a few subenvironments peeled off in the direction of [ʌ], leaving in-
complete classes of sounds in the pre- and postvocalic environments as
seen in (12). The + indicates the environments in which [u] may appear.

(12)

<div align="center">Postvocalic</div>

	_ll	_l#	_lC	_d	_t	_s	_č	_š
p_	+	+	+	p_ +	+	+		+
b_	+	+	+	b_			+	+
f_		+	+	k_				+
v_				g_				

(Pre-vocalic label on left spanning b_ and f_ rows)

In Chomsky and Halle's account of Modern English phonology, /u/ is
given as the segment underlying [ʌ] and [u]. In the derivational rules they
provide (1968:203, 204), the /u/ word class is centralized by the Vowel
Shift Rule (/u/ → [o]) in conjunction with the Rounding Adjustment Rule
([o] → [ʌ]). The [u] residue of the word class, however, follows a
different route. It moves by a readjustment rule to [ɨ] and thus avoids

the above shift and adjustment rules. In order to extract the [u] words
from the /u/ class before they become [ʌ], Chomsky and Halle (239 (8))
propose the environments given in (13). By comparing these environments
with those in (12), it is evident that their rule in prevocalic position
omits the environment /k__/ and adds the environment /v__/. Post-
vocalically, the rule omits the environments /__d, __t, __s, __ℓC/ and
adds the environments /__č, __ǰ, __ž/.

(13)

$$
/u/ \rightarrow [\dot{\imath}] \quad / \quad
\begin{bmatrix} -\text{nas} \\ +\text{ant} \\ -\text{cor} \end{bmatrix}
\underline{\qquad}
\left\{
\begin{array}{l}
\ell \left\{ \begin{array}{l} \# \\ \ell \end{array} \right\} \quad \text{(i)} \\[2ex]
\begin{bmatrix} -\text{ant} \\ +\text{cor} \\ -\text{voc} \end{bmatrix} \quad \text{(ii)}
\end{array}
\right\}
$$

The environments of (13) are not part of a variable rule and, for
this reason, Chomsky and Halle try to accommodate only the least variable
items in the word class. The only words which are exceptional according
to this rule are pullulate and pudgy, budge, budget, fudge, listed by all
dictionaries as [ʌ]. These are minor problems. The major problems with
the rule are the following: (1) The omissions noted above leave the
rule quite inadequate to describe the phenomenon of [u] in ME /u/ words.
And (2) the natural classes [+ant, −cor, −nas] and [−ant, +cor] extend
the rule beyond the phenomenon of [u] in /u/ words. Needed is an
expansion and refinement of the environments of (13) to reflect more
accurately the dimensions of the past sound change. This involves in-
corporating into the environments the relatively large number of variable
words which still exist in this word class.

Beginning with subpart (13)i, we notice that words with postvocalic
laterals fall into three groups, not two, as shown in (14). In the second
group, an underlying geminate lateral is assumed in order to distinguish
this environment from the one controlling the Y-Insertion Rule, namely,
/uC$_0^1$ ($\{{}^r_w\}$)[−cns]/, e.g. fuliginous.

(14)   /uℓ#/   /uℓℓ/   /uℓC/

[u]   bull₁(OE), bull₂   bullace (MFr.),   bulbul (Per.),
           (MLat.), bull₃   bullet (MFr.),   fulham (ME),
           (?), bulrush (ME),   bullion (AngloFr.),   fulmar (Scan.)
           full₁ (OE), full₂   bully (Dut.),
           (MFr.), pull (OE)   pullet (MFr.),
                                 pulley (MFr.)

[u ~ ʌ]   bulwark (MDut.),   bulla (MLat.),   bulge (MFr.), bulk
           fulsome (OE)   bullate (NLat.)   (ONorse), fulcrum
                                                         (LLat.), fulgent
                                                         (Lat.), fulminate
                                                         (MLat.), fulvous
                                                         (Lat.), pulmonary
                                                         (Lat.), pulpit
                                                         (Lat.)

[ʌ]   pullulate (Lat.)   bulb (Lat.),
                                                         pulchritude (Lat.),
                                                         pulp (MFr.)

When the words in (14) are converted into percentages as in (15), a
pattern is clearly apparent. For now, let us assume that the pattern
represents the remains of a decomposition change in Modern English. We
see then that the environment with the greatest resistance to centralization
is /uℓ#/; the one with the least resistance is /uℓC/. The geminate /ℓ/
environment is intermediate between these two.

(15)   /uℓ#/   /uℓℓ/   /uℓC/

       [u]   78% (N=7)   67% (N=6)   21% (N=3)
       [u ~ ʌ] 22% (N=2)   22% (N=2)   57% (N=8)
       [ʌ]   0% (N=0)   11% (N=1)   21% (N=3)

The degree to which centralization occurs in the /uℓC/ environment
appears to depend on the nature of C, which must now be specified more
fully. If it is assumed that <u>fulgent</u> (cf. <u>fulgurant</u>) has an underlying

/g/, marked [+deriv] so as to be subject to the Velar Softening Rule, then all of the consonants after /l/ are [-cor, -str] (/p, b, m, k, g, h/), except in the words <u>bulge</u> and <u>fulvous</u>.[11] Reciprocally, in all words except <u>bulge</u> and <u>fulvous</u>, the /u/ before the sequence /l[+cns, +str]/ has centralized, e.g. <u>pulverize</u>, <u>propulsion</u>, <u>pulse</u>.

In prevocalic position, the natural class [+ant, -cor, -nas] (/p, b, f, v/), cited in Chomsky and Halle's rule (13) above is no longer intact. All words with a prevocalic /v/ and a postvocalic lateral environment have categorically centralized to [ʌ], e.g. <u>vulcan</u>, <u>vulgar</u>, <u>vulnerable</u>, <u>vulpine</u>, <u>vulture</u>, <u>vulva</u>. To represent this broken set such that only the plosives (/p,b/) and the voiceless strident (/f/) are included complicates the rule. However, given the nature of the decomposition process, assymmetry such as this is unavoidable. The variable rule corresponding to subenvironment (13)i above is given in (16). The discussion of this rule is deferred until the second subenvironment of (13) has been developed.

(16)

$$
\text{ME } /u/ \rightarrow [\Lambda]_\phi \quad / \quad
\begin{bmatrix} +\text{ant} \\ -\text{cor} \\ -\text{nas} \\ \left\{ \begin{bmatrix} -\text{cont} \end{bmatrix} \atop \begin{bmatrix} -\text{str} \\ -\text{vce} \end{bmatrix} \right\} \end{bmatrix}
\underline{\hspace{2cm}}
\begin{bmatrix} +\text{voc} \\ +\text{ant} \end{bmatrix}
\begin{Bmatrix} [-\text{seg}] & \text{(i)} \\ \begin{bmatrix} +\text{voc} \\ +\text{ant} \end{bmatrix} & \text{(ii)} \\ \begin{bmatrix} -\text{cor} \\ -\text{str} \end{bmatrix} & \text{(iii)} \end{Bmatrix}
$$

The [u] variant also appears in another environment of the ME /u/ word class. This environment is an elaboration of (13)ii and concerns the words of (17).[12]

(17)

[u]   bush$_1$ (ME), bush$_2$ (Dut.), bushel$_1$ (OFr.), bushel$_2$, (Ger.),
          butcher (OFr.), cushion (MFr.), cushy (Hindi), pudding
          (ME), push (OFr.), puss$_1$ (?), puss$_2$ (Ir.Gael.), put (OE)

[u ~ ʌ]   cud (OE), putlog (?), rudd (OE)

[ʌ]   cutch (Malay), pus (Lat.), putt (Mod.E ⟨ <u>put</u>), putter
          (E dial.), scutch (Fr.), scutcheon (MFr.), sputter (Dut.)

In this set of words, we find the segments /t, d, s, š, č/ post-vocalically. When /d/ is excluded, as discussed below, the other segments can be economically stated as [+cor, -nas, -vce]. In prevocalic position, we again encounter an inelegant environment. Of the [-cor, -nas, -cont] set, only /p, b, k/ occur. Of these, /p/, [+ant, -vce], has the greatest freedom to co-occur with the set of postvocalic segments. The other prevocalic members in the set, /b, k/, are found only with the [-ant] segments (/š, č/). In this case, since both /b, k/ and /š, č/ are subsets of the more general pre- and postvocalic environments, conventional angle brackets can represent the correct pairing, as in (18).

(18)

$$
\text{ME } /u/ \rightarrow [\Lambda]_\phi \quad / \quad
\left[
\begin{array}{c}
-\text{cor} \\
-\text{nas} \\
-\text{cont} \\
\left\{
\begin{array}{c}
\left[\begin{array}{c} +\text{ant} \\ -\text{vce} \end{array}\right] \\
\left\langle \left[\begin{array}{c} \alpha\ \text{ant} \\ \alpha\ \text{vce} \end{array}\right] \right\rangle
\end{array}
\right\}
\end{array}
\right]
\underline{\qquad}
\left[
\begin{array}{c}
+\text{cor} \\
-\text{nas} \\
-\text{vce} \\
\langle -\text{ant} \rangle
\end{array}
\right]
$$

Three instances of [u] preceding /d/ are not described by this environment: pudding, cud, rudd. Since only these remain out of a large number of categorically centralized words with similar environments, these three are taken to be the lexical residue of an already completed change. There are four relatively recent foreign borrowings which appear to be accounted for by Rule (18): kaput, putsch, puttee, sputnik. Although these words display either [u] or [u ~ ʌ], they are not part of the de-composition process. The process had already come to a halt before these words entered the language. Furthermore, their pronunciations can be attributed to the fact that the ⟨put⟩ spelling which these words share suggests both the [u] and the [ʌ] pronunciation.[13]

When the words just mentioned are excluded from the meager list in (17), only one variable word remains: putlog. Thus, Rule (18) is not an active variable rule. Were this rule still active, the productive

/ū/ → [u] rule would still feed the centralizing rule as it once did,
cf. blood, flood ((ō) > ū > u > ʌ). This no longer happens. Furthermore,
when the majority of words are either categorically [u] or categorically
[ʌ], there is no way to interpret the picture in terms of an orderly
progression of /u/ to [ʌ]. Clearly, the [u] words are fossils of a sound
change which was arrested just before completion. In Modern English, the
[u] words must be underlyingly /u/, while all categorically centralized
ME /u/ words must now be represented as /ʌ/. In contemporary English, then,
there are now two word classes where once there was only one. With this
interpretation, there is no need for environment (18) in a synchronic
grammar of Modern English, although diachronically, the aborted sound
change accounts for the hole in the /ʌ/ environments which is shaped
exactly like (18).

Now we return to rule (16). Given the displays of (14) and (15),
rule (16) looks like an active variable rule. Its input in Modern English
would be Mod.E /u/, namely, all words having initial /bul-, ful-, pul-/.
There is, however, considerable room to question this interpretation.
First, there appears to be a reason for the particular words in the [ǔ]
category to be in that category. On the one hand, the original ME /u/
word class affected by the centralization process seems to have consisted
mainly of Middle English words from Old English or French origins. The
reason for suspecting this is that these are the kinds of words which
categorically remained as [u] when the process was arrested, as seen by
looking at the [u] category of (14) and (17). Words from other sources
in this group are homophonous with Old English or French words, e.g.
$bull_1$ and $bull_2$, $bush_1$ and $bush_2$. On the other hand, in the variable
and categorical [ʌ] sets of (14), the words are predominantly of Latin
origin. This suggests that these Latin words were not associated with
ME /u/ when the change was in process.

Second, there appear to be reasons for the variable, instead of
categorical, pronunciation of the Latin words in (14). One reason is
phonological. If the Latin words were not part of the ME /u/ word class,
there would be no strong tendency to pronounce them in native fashion,
with [u]. However, all of the variable words appear to begin with the
first three segments found in the categorical [u] words, $bull_1$, $full_1$,

and pull, which were members of the ME /u/ class from OE /u/. Thus, there
is the ambiguity of whether or not the Latin words belong to the same
class as bull$_1$, full$_1$, and pull, especially since the words are not all
common ones. The ambiguity in phonological categorization is in part
responsible for the variable pronunciation.[14] A second reason for the
variability among the Latin words no doubt lies in orthography.[15] At the
level of a general spelling pattern, they all conform to the $\langle uC_2 \rangle$ pattern
for $[\Lambda]$. But at the level of specific graphs, their spellings bear a
striking similarity to the words bull$_1$, full$_1$, and pull which are known to
be pronounced with [u]. The result of an ambiguous spelling pattern is
variable pronunciation. Furthermore, where the Latin word is closest
orthographically to the three key words, as in bull$_2$, the pronunciation is
categorically [u]. But where the Latin word is farthest from the key
words in this respect, there is the greatest variation as seen in the /uℓC/
category. Undoubtedly, both the phonological and orthographic ambiguities
conspire to create variability.

Thus, rule (16) identifies both an environment where centralization
failed to be completed and the variable effects of a spelling pronunciation.
The /ℓ[-cor, -str]/ configuration appears to be an accident of the words
borrowed rather than a decomposition environment or a context relevant to
a spelling pronunciation. Consequently, rule (16), like rule (18), does
not belong to a grammar of Modern English.

To summarize, the variable-rule approach to language community data
turned up two ossified decomposition environments left in English when the
Middle English centralization process was aborted near its end. Highlighted
in the foregoing discussion is the fact that there are sources of varia-
bility other than sound change. Because these sources can create the
appearance of a productive variable rule, they must be carefully identified
so that dead rules will not be accepted as alive.

2.4. Environments of [u] in a diaclass change. Besides word class
decomposition, there is another source of [u] in English, a diaclass
change. The words involved are listed in (19). Many of these words can
be accommodated in the above environments of /ū/. Others, however, cannot
readily be accounted for, which suggests that something other than word
class decomposition has affected these words. It appears that /(h)w/, as

elsewhere in the vowel system, has exerted strong assimilatory pressures on the vowel which follows it. To the extent allowed by the limited amount of data, the effect of these pressures on vowels from several word classes is discussed here.

(19)

[u]	woof$_1$, wood, would, wool, wolf, woman
[u ~ ūw]	whoop, whoops, woof$_2$, (boogie-)woogie, woozy, swoosh, whoosh
[u ~ ʌ]	squush
[ūw]	swoop, swoon, womb, wound
[ʌ]	won, wonder, swum, swung

When we look at the /ū/ words in (19) (the first three items with [u], the first five variable items, and all the words with [ūw]), we find that /w/ co-occurs with a wide range of postvocalic segments. However, judging from the words under [ūw], there appears to be a constraint on laxing when the postvocalic segment is a nasal.

Turning to the ME /u/ words, we find only two items with [u], wool (OE wull) and wolf (OE wulf). In the case of postvocalic nasals, the constraint is the reverse of that seen above. Words with /u/ preceding nasals have been categorically centralized to [ʌ], as noted in (19). (The /u/ of won and wonder was first spelled ⟨u⟩ but later changed to ⟨o⟩ by scribes for orthographic reasons (Hanna, Hodges, and Hanna 1971:44).) In the case of wool and wolf, /w/ has had the effect of preventing centralization.

There is some evidence that the assimilatory effects of /(h)w/ are broader still. An examination of an extensive list of /i/ words having /(h)w/ prevocalically turns up only four words which end in /š/: squish, swish, whish, and wish. Of these, the first three have developed [u] variants which have entered into standard English: squush, swoosh, whoosh. They have the same meanings as their historically earlier /i/ counterparts. As for wish, the [u] variant [wuš] is known in nonstandard English. Thus, in the environment /(h)w ___ š/, lax /i/ is unstable. Since the tense high front vowel does (or may) not occur in this environment, the effect on such a vowel is impossible to determine.

It will be noted that squush is variable in a direction different from swoosh and whoosh. However, squush is the only word of the three to be related to a low-vowel word with the same general meaning, squash, given by some dictionaries as the source of squush. This relationship may be sufficient to influence the direction of variability.

There is additional evidence that high front vowels are influenced by the back rounded glide. The word woman developed out of OE wīfman. When the /ī/ was laxed preceding the consonant sequence /fm/, [wif-] resulted. Apparently, under the kind of pressure described above, [i] shifted to its back counterpart, [u], perhaps before /f/ was lost. Nonstandard English provides further support for believing that, in addition to /š/, postvocalic labials tend to promote vowel retraction. A nonstandard English rendering of whip is [hwup]. Future investigation of these varieties of English may shed some light on the social variation of this diaclass rule.

Before leaving the word woman, it should be observed that only the singular form of the word shows a retracted vowel. Number was originally marked by the inflection of man. However, the loss of stress on the final syllable and subsequent vowel reduction obscured the signal. In its place, the contrast between the retracted and unretracted stressed vowel began to be used. A priori, a similar case could be made for the functional contrast found in the [ʌ] verbs of (19): won (win), swum (swim), swung (swing). However, such a case would leave unexplained pairs like fling-flung, sing-sung.

In short, /w/, a lax high back rounded glide, has produced different effects on vowels having the feature [+high]. In the case of /ū/ words, the vowel assimilated to the [-tns] feature of /w/. In the case of ME /u/ words, the vowel was reinforced by the [+high, +round] feature of /w/ to resist the centralizing move to unrounded [ʌ]. In the case of /i/ words, the vowel assimilated to the [+back, +round] features of /w/ to become [u]. These, then, are three different facets of a single old but continuing diaclass change, a change which appears to be entirely independent of word class decomposition. Given additional evidence from nonstandard varieties of English, it may be possible to arrive at a unified characterization of the process.

3.0 Conclusion

This study is intended to illustrate the viability of extending the decomposition model of sound change to the analysis of language community data gleaned from lexicographical sources. The analysis, of course, can be no better than the data. The data, in this case, is rich. Not only does the dictionary afford easy access to the entire target word class, but it also provides information about each word class member, which is important for the variability study. Of the various kinds of lexicographical information available to the researcher, this study has highlighted (1) the role of derivational relatedness, locale of use, and social level (standard vs. nonstandard) for delimiting the corpus of data; (2) the use of pronunciation cues for constructing a composite transcription; (3) the function of etymological information for establishing word class membership; (4) the role of time and place of word origin for the treatment of accretions to the lexicon.

It is also the case that an analysis can be no better than the analytical tools used. Because the data represents a changing standard language found across many speech communities, the composite transcription is inevitably filled with massive variation. The sociolinguistic model of environmental decomposition has been successful in coping with ongoing change by bringing to light the patterning within variability. For this reason, language community data and the variation model make a superb team.

In the case of lax [u], it has been possible to see word class change both at its beginning in the active /ū/ laxing rule and at its end in the now inactive centralization rule. From data which is as exhaustive as it has been possible to make it, the relevant environments have been isolated, and a genuine pattern of change has been separated from a spurious pattern. Finally, a diaclass change has been isolated from word class decomposition. The various insights which have emerged from this study of lax [u] stand as testimony to the usefulness of lexicographical data gathered in the way reported here and analyzed using the decomposition model.[16]

Footnotes

[1] In this paper, slashes, / /, will identify the word class as well as the underlying phonological segment; square brackets, [ ], will enclose a pronunciation (variant) of the word class as well as the output of derivational rules.

[2] In addition to these six dictionaries, Kenyon and Knott (1953) was also consulted. It was not included because it is not recent, it is not comprehensive, and it contributes nothing to the composite transcriptions described below.

[3] Ferguson (1968:32) notes in his list of features which generally characterize standard languages that the social correlate of a standard language is 'the educated middle class'. This same observation is made by dictionary editors regarding the unmarked usage they report, for example Gove (1972). Presumably Cassidy's dictionary (ms.) will provide evidence for a similar study of patterns in uneducated usage by tapping the data reported under categories I and II in the Linguistic Atlas (Kurath 1939:44).

[4] The ME /ō/ class does not arise from a homogeneous source in Old English. While most words come from OE /ō/, some are instances of OE /u/ which was tensed and lowered, merging with ME /ō/, e.g. wood from OE wudu.

[5] Variable words in this class do not arise from an active variable rule, as discussed below. Although the old centralizing rule is no longer active, native speakers do have a residual awareness of the rule as shown by a psycholinguistic investigation of productive and nonproductive rules (Dickerson ms.).

[6] For the comparisons made in this study, percentages are considered entirely adequate, as opposed to the probability approach to analysis introduced by Cedergren and Sankoff (1974) and incorporated by Labov.

[7] Proportions calculated in these two different ways may each yield grossly unreliable statistics given certain circumstances. The language community figure will be skewed if only a few word class members representing a particular environment exist. The speech community figure will be skewed if a very low frequency of items representing the environment chance to occur in the data, or if the figure is based on a high frequency of only a few (perhaps idiosyncratic) words. An extreme example of distortion is found in a study of consonant cluster simplification in which the set of instances of one environment consists of the repeated use of one idiosyncratic word (Shuy and Fasold 1972:7-8).

[8] No doubt inadvertently, however, Chomsky and Halle open up another route from /ō/ to [u]. Their fairly general rule which applies before rule (62) is ordered before Diphthongization and Vowel Shift, because in their summary of rules (pp. 238-245), rule (62) appears before Diphthongization and Vowel Shift. By following the rule ordering in the summary of rules, /fōt/ and /tōk/ should become [fut] and [tuk] and never undergo Diphthongization and Vowel Shift. This route is simply /ō/ → [u].

[9] Although from ME cuccu, cuckoo behaves as if it were part of the /ū/ word class. The structure of the word is a syllable reduplication of the form CV CV. The first syllable has been made to rhyme with the second, instead of vice versa, because [u] may not appear word finally, while [ūw] may occur before /k/. Supporting the tense /ū/ classification of this word are these facts: (1) Every dictionary cites the [uw ~ u] alternation; there is no record of an [u ~ ʌ] alternation in contemporary English. (2) The derivative of cuckoo, kook, is categorically [ūw]. (3) The word fits the general environment for /ū/ (Rule (7)); it is not even remotely similar to the /u/ environments discussed below.

[10] The words flood and blood likewise fit this expanded environment. It appears that they were laxed to [u], then centralized by the ME /u/ → [ʌ] rule discussed below.

[11] The word bugger [u ~ ʌ] also fits the pattern with /l[-cor, -str]/. The word originated from Bulgar and subsequently lost the postvocalic /l/.

[12] If this set of words were subject to Chomsky and Halle's rules, those words which consist of /uC$_0^1$($\{^r_w\}$)[-cns]/ would have to be entered in the lexicon with geminate /š/ or /č/ segments to prevent their becoming [yūw].

[13] These words were never part of ME /u/, and, as Hans Hock has pointed out, puttee does not even have a high vowel in the donor language (cf. Hindi paṭṭī. In addition to these four words, there are many other borrowings which have entered standard English with variable pronunciations, such as chutzpah (Yid.), crux (Lat.), cushaw (Algon.); gulden (Dut.), hussar (Hung.), jubbah (Arab.), kudzu (Jap.), lungi (Urdu), mullah (Pers.), pulque (Mex.Sp.), rumba (Sp.), sukkah (Heb.), tundra (Rus.), umlaut (Ger.). In these cases, the variability involving [u] may be the result of spelling pronunciations. However, ⟨u⟩ is not pronounced [u] in any of these environments among native English words. For this reason, the regular appearance of [u] in these borrowings and in hundreds of others suggests a tendency of native English speakers to use [u] to mark foreign words as foreign when they are spelled ⟨uC#⟩ or ⟨uC$_2$⟩ at least until the words lose their foreign semantic associations. These matters require further investigation.

[14] To the extent that the Latin words are seen as foreign words, native speakers may also use [u] to mark that foreignness, as suggested in note 13.

[15] I am indebted to Hans Hock for suggesting this possibility.

[16] I would like to express special thanks to Hans Hock, Herbert Stahlke, Rebecca Finney, and William Pech for their instructive and cogent criticisms of earlier versions of this paper.

References

Cassidy, Frederic G.   ms.   Dictionary of American regional English.

Cedergren, Henrietta J., and David Sankoff.   1974. 'Variable rules: performance as a statistical reflection of competence.' Lg. 50.333-55.

Chomsky, Noam and Morris Halle.   1968.   The sound pattern of English. New York: Harper and Row.

Dickerson, Wayne B.   ms.   'Psycholinguistic reflections of language community variable rules.'

Ferguson, Charles A.   1964. 'Baby talk in six languages.' American Anthropologist 66.103-14.

_____.   1968. 'Language development.' Language problems of developing nations, ed. by J. Fishman, C. A. Ferguson, and J. Das Gupta, 27-35. New York: John Wiley and Sons.

Funk and Wagnalls.   1973.   Funk and Wagnalls standard college dictionary. New York: Funk and Wagnalls.

Gove, Philip B.   1972.   'Introduction.' Contemporary English, ed. by D. L. Shores, 155-9. Philadelphia: Lippincott.

Guralnik, David B. (ed.) 1970. Webster's new world dictionary of the American language. New York: World Publishing Co.

Halliday, Michael A. K.   1968. 'The users and uses of language.' Readings in the sociology of language, ed. by J. Fishman, 139-69. The Hague: Mouton.

Hanna, Paul F., Richard E. Hodges, and Jean S. Hanna. 1971. Spelling: structure and strategies. Boston: Houghton Mifflin.

Kenyon, John S., and Thomas A. Knott. 1953. A pronouncing dictionary of American English. Springfield, Mass.: G. & C. Merriam.

Kurath, Hans. 1939. Handbook of the linguistic geography of New England. Providence, R. I.: Brown University.

Labov, William. 1965. 'On the mechanism of linguistic change.' Monograph series in languages and linguistics, Georgetown University, 18.91-114.

_____.   1966. The social stratification of English in New York City. Washington, D. C.: Center for Applied Linguistics.

_____.   1969. 'Contraction, deletion, and inherent variability of the English copula.' Lg. 45.715-62.

_____. 1971a. 'Methodology.' A survey of linguistic science, ed. by W. Dingwall, 412-91. Baltimore, University of Maryland.

_____. 1971b. 'Variation in language.' The learning of language, ed. by C. E. Reed, 187-221. New York: Appleton-Century-Crofts.

_____. 1972. 'The internal evolution of linguistic rules.' Historical linguistics and generative theory, ed. by R. Stockwell and R. Macaulay, 101-71. Bloomington: Indiana University Press.

Little, William, et al. 1966. The shorter Oxford English dictionary on historical principles, 3rd ed., rev. and ed. by C. T. Onions, London: Oxford University Press.

Malmstrom, Jean. 1958. A study of the validity of textbook statements about certain controversial grammatical items in the light of the linguistic atlas. (unpublished dissertation) University of Minnesota.

Morris, William (ed.) 1973. The American Heritage dictionary of the English language. New York: American Heritage.

Nichols, Ben. 1974. 'A rationale for vowel shift.' Toward tomorrow's linguistics, ed. by R. Shuy and C.-J. Bailey, 226-38. Washington, D. C.: Georgetown University Press.

Pyles, Thomas. 1964. The origins and development of the English language. New York: Harcourt, Brace, and World.

Shuy, Roger W., and Ralph W. Fasold. 1972. 'Contemporary emphases in sociolinguistics.' Sociolinguistics in cross-cultural analysis, ed. by D. Smith and R. Shuy, 1-13. Washington, D. C.: Georgetown University Press.

Stein, Jess M. (ed.) 1973. The Random House dictionary of the English language. New York: Random House.

Stewart, William. 1968. 'A sociolinguistic typology for describing national multilingualism.' Readings in the sociology of language, ed. by J. A. Fishman, 531-45. The Hague: Mouton.

Weinreich, Uriel, William Labov, and Marvin Herzog. 1968. 'Empirical foundations for a theory of language change.' Directions for historical linguistics: a symposium, ed. by W. P. Lehmann and Y. Malkiel, 97-195. Austin: University of Texas Press.

Woolf, Henry (ed.) 1974. Webster's eighth new collegiate dictionary. Springfield, Mass.: G. & C. Merriam.

PROBLEMS OF THE DUAL IN SOQOTRI

Samuel E. Fox

Soqotri is a language of the Southern group of the Semitic family, spoken on the island of Soqotra in the Indian Ocean. Other modern representatives of this group include the modern Ethiopian languages, and the closest relatives of Soqotri, Mehri and Shauri. Our knowledge of the Soqotri language is chiefly a product of a linguistic expedition to the island at the turn of the century.[1] The data from the texts published by this expedition were collated and edited by Wolf Leslau (1938). It is on Leslau's dictionary that this paper is based.

In this paper I will attempt a comparative and internal reconstruction of a group of Soqotri nouns which are attested in both their singular and dual forms. In order to carry out this reconstruction one must first be aware of several facts about this language. In Soqotri, accent is normally on the penultimate syllable, though there are some, apparently random, cases where the accent is earlier. In addition, Soqotri, as a Semitic language, is presumably descended from a parent language in which nouns were followed by a case ending with a short vowel, and in some forms by an n or m as well. In classical Arabic the case endings take the forms -un, -an, and -in for the indefinite nouns in the singular, and -u, -a, and -i for definite singular nouns. In Soqotri the case endings for singular and broken plural nouns have completely disappeared. Thus

morqah	meraqih	stick (sing. and plural)
rey	ir'es	head (sing. and plural)

That the dual suffix in Soqotri is -i can be seen from a number of nouns which have no other alternation between their singular and dual forms. For example

gadl -i	braid
berk -i	knee
?arhiyeb -i	kind of tree

In Classical Arabic, nouns appearing before major breaks take on the pausal form, which involves the drop of case endings for the singular and a change of the feminine marker from -at to -ah. For example, we have the following Classical Arabic words, in their full and pausal forms:

t̞awīlatun	t̞awīlah	table
mudarrisun	mudarris	teacher
luɣatun	luɣah	language

This pausal form has become widely generalized in Modern Standard Arabic. In spoken dialects this trend is carried further, and the final ḥ of the pausal forms is dropped altogether.

In Soqotri nouns there is a similar phenomenon. As we have noted, the singular case endings have been dropped, evidently as a result of universal generalization of the pausal forms. However, Soqotri has several separate forms of the feminine ending:

-oh:	bioh	mother
-eh:	ḥegiyeh	wall
-ah:	mqeydah	big pot

The Classical Arabic pattern, with only one form of the feminine marker (-at) seems to be a reflection of the proto-Semitic situation. The origin, then, of the variety of forms in Soqotri is unclear.

The original t̞ of the feminine is preserved in the dual, where it is followed by -i. In some cases, we find an alternation between an i in the dual form and an e in the singular. For example, we have

ʔeyreh	ʔeyriti	lake
šebeh	šebiti	rabbit

There seems to be no conditioning factor to explain the fact that some nouns ending in -eh change their e to i before the dual, while others, like ʔarhiyeb, do not. It seems most reasonable to explain the alternation as the result of phonetic split, due to a lowering of i to e before ḥ, a change attested in Gothic and Old Norse, for example; cf. Wright 1954:27 and Gordon 1927:255. We can then reconstruct an original pattern with four variants of the feminine ending: -it, -et, -at, -ot, which, as the result of the lowering of i to e, is simplified to -eh, -ah, -oh in the singular.

There is, however, evidence to show that there has been a re-interpretation of this rule as one of raising--a regressive assimilation of the e to the following i.

The first piece of evidence which suggests that this may be the case is the relative size of the group showing this alternation compared to that with unchanged e. We have 13 words attested with the alternation,

and only six without it. This seems a likely result of the reanalysis of the alternation as a raising process, and of an incomplete spread of the resulting new rule to other words with the termination -eh. (This is, admittedly, a very weak argument, because of the small size of the corpus available and the element of chance involved.)

More substantial support for the theory that a variable raising rule is spreading across the language is provided by another group of nouns which show an alternation involving the insertion or deletion of a sequence eh.

	Singular	Dual	
(1)	kibehen	kibeni	jug
(2)	qarmehem	qarmemi	finger
(3)	mižeher	mižiri	court
(4)	'idbeher	'idbiri	bee
(5)	šibreher	šibriri	visible spot
(6)	šedehed	šididi	egg-white
(7)	fidehon	fidoni	mountain
(8)	tebehor	tebori	wall
(9)	firehim	firimi	girl
(10)	rebehon	rebeni	master
(11)	qehelihen	qahelini	egg

Table I: Singular and dual forms with $VhV : V$

These data suggest that originally there may have been a rule of the form:

(i) $\acute{V} \rightarrow ehV/VC_1^2 \text{ -- } C\#$

That is, when the originally penultimate and thus stressed vowel became final and thus lost its accent through deletion of case endings, it expanded compensatorially through addition of the group eh.[2] This change did not occur in the dual, since the dual ending kept the vowel in the accented penult.

This explanation, however, is not entirely adequate, since words like mižeher show i in the dual, in place of the e suggested by the singular in -eher. We might claim that in the original change, i and e converged in ehe, but this formulation is not independently motivated, and thus really does not explain anything. More importantly, our hypothesis of a variable rule raising e before the dual suffix -i can cover this alternation as well as that to which we have already applied it. In addition, this explanation will make it possible to account for

firehim, in which i alternates with ehi as the eh-insertion rule (1)
predicts. On the other hand, a merger of i and e incorporated into the
eh-insertion rule would predict that all instances of i should alternate
with ehe, and thus would wrongly predict *firehem.

We posit, then, two separate developments, the second of which is
not yet complete.

(i) $\acute{V} \rightarrow ehV/VC_1^2$ -- C#

(ii) e $\rightarrow$ i/-- Ci#

We emerge with four patterns:

	*firim	*firimi	*šibrer	*šibreri	*kiben	*kibeni	*tebor	*tebori
(i)	firehim	-	šibreher	-	kibehen	-	tebehor	-
(ii)	-	-	-	šibriri	-	-	-	-

This explanation, it should be pointed out, still leaves two words
unaccounted for, rebehon and qehelihen. They may perhaps be due to
inaccuracies in the transcription; in any case, a larger body of data
would be needed before it could be hoped that a reasonable explication of
these forms could be found.

We have seen in two distinct cases evidence of a variable rule which
raises some instances of e before a dual suffix, while leaving others
untouched. Additional evidence can be found in a few other words which
show raising elsewhere than in the feminine marker:

mahber	mahbiri	hundred
te'e	ti'iti	sheep
'ed	'idi	hand
šelhel	šelili	little wadi

That this process is sporadic outside of the feminine suffix and cases
of eh-insertion is shown by the existence of words like ?arhiyeb which
show no change in the dual (?arhiyebi). As stated earlier, the origin
of this rule seems to be the reinterpretation of the original rule, which
lowered i to e before the h of the feminine suffix.

It still seems rather strange that the destressed vowels of words
like mižer should have acquired an eh which leads to sequences of two
successive syllables with short vowels, rather than simply being
lengthened to [V:]. In order to shed some light on this, let us turn to
another set of words, one of which we have just seen in another context.

Some nouns show an alternation in singular and dual forms which involves
the presence or absence of h alone, rather than eh. Thus, alongside
qarmehem-qarmemi we have qanther-qanteri. Similarly we find

šerher	šereri	spark
ther	teri	entrance
fa?har	fa?ari	young bull
šelhel	šelili	little wadi

We have no way of predicting which of these two forms (h or eh) will
occur, if one appears at all. The h appears to be associated with a final
liquid, but this is not a sufficient condition, there being some words
with inserted eh which also conclude with liquids, such as šibreher and
mižeher. There is no simple solution to this problem, but the following
conjectural explanation appears to account for the facts well.

As a first step in our explanation, we will assume that forms like
*qarmĕmV, concluding with a short vowel case ending, reacted initially
to loss of their final vowels and the resultant shift of stress by a
simple lengthening of the originally penultimate vowel. Thus, *qarmĕmV
first became *qarmēm.

Soqotri has a number of words, such as sohor "thorn", and šeher
"month", which contain the pattern VhV, and in which the h seems to be
underlying. If, for some period in the past, a variable rule appeared
which deleted h, sequences of the type VhV would have alternated with VV,
that is V̄. The long vowels thus created would have merged with other
long vowels, such as those resulting from compensatory lengthening in
words like *qarmēm.

The surface alternations created by this variable rule now could be
generalized to those forms which had long vowels from other sources,
such as *qarmēm, on the basis of the model

$$\bar{e} : ehe$$
$$\bar{e} : X = ehe.$$

Notice that this cannot be considered a rule generalization, but must be
a surface generalization. For the rule accounting for the model alterna-
tion ē : ehe is one of deletion of underlying /h/. Forms like *qarmēr,
however, lack an underlying /h/ which can be deleted.

Subsequently, the variable rule deleting h apparently was again dropped
from the grammar. On the other hand, the ehe of forms like *qarmehem,

not being derivable from underlying /ehe/ and thus not affected by this
rule loss, remained and had to be accounted for by the synchronic grammar.
Apparently this was done by a reinterpretation of ehe as eh + e, i.e. as
eh-insertion, for this pattern has spread to several other nouns; cf.
examples (7), (8), and (9) in Table I. Thus we have fidehon in place of
the expected *fidohon, and firehim instead of *firihim. We can summarize
these steps in the following tabular form.

	qarmémV	tebórV
loss of case endings	qarmĕm	tebōr
analogical h-insertion	qarmehem	tebohor
spread of eh pattern	-	tebehor

The introduction of the h into a group of singulars provides what
may be interpreted as a singular marker, in opposition to the -i which
marks the dual. This encouraged one more analogical change, this time
involving words like šelhel. If these words originally had h in both
the singular and dual forms, it would have become variable like all others
during the period of our posited h-deletion rule. When the h became
stable again and/or emerged as a singular marker in forms like qarmehem,
by analogy the h would have been retained in the singular (šelhel) and
dropped in the dual, yielding *šeleli, and after raising šelili, the actual
form.

By our hypothesis, then, a series of reanalyses of situations
resulting from variability resulted in a new system of marking for
number in this group of Soqotri nouns. This is particularly interesting
since it involves an interplay of rule action and surface analogy. For
a similar case see Hock 1975.. The role of variability in restructuring
can be seen to be important in providing an explanation for this problem.
I should add, however, one important caveat about this case. The material
on which this paper is based was collected in an early expedition, and
perhaps as a result, is hardly a model of consistency. It would be of
great interest to have a new collection of data for checking purposes,
to gather new forms, and to measure the progress of change in this language
over the last three-quarters of a century.

NOTES

[1]The expedition of the Austrian Royal Academy of Science of 1899, the results of which are partly contained in Müller's Mehri und Soqotri Sprache.

[2]An attempt to account for this rather unnatural rule will be presented below.

REFERENCES

Gordon, E.V. 1927. An introduction to Old Norse. Oxford: Clarendon Press.
Hock, Hans Henrich. 1975. Current trends in historical linguistics. Proceedings of the First Annual Meeting of the Kentucky Inter-disciplinary Conference on Linguistics. Louisville: Inter-disciplinary Program in Linguistics, University of Louisville.
Leslau, Wolf. 1938. Lexique soqotri. Paris.
Müller, Heinrich. 1902. Mehri und Soqotri Sprache. Vienna: Alfred Hölder.
Wright, Joseph. 1954. Grammar of the Gothic language. 2nd ed. London: Oxford University Press.

SUBSTRATUM INFLUENCE ON (RIG-VEDIC) SANSKRIT?[1]

Hans Henrich Hock

0.1:   As is well known, the South Asian subcontinent today constitutes
one of the paradigm cases of linguistic convergence: Three major linguistic
families of distinct origins (Dravidian, Indo-Aryan, and Munda), as well as
at least one language isolate (Burushaski) have merged into a sprachbund
which further extends into the fringes of the neighboring Iranian and Tibeto-
Burman language families. This sprachbund is characterized by an impressive
array of shared features which are found throughout most or all of the indi-
vidual subdialects of the area and which include a contrast between dental
and retroflex segments, a prevailing SOV sentence structure, and the pheno-
menon of a 'cumulative' extended sentence structure characterized by the ten-
dency to limit the occurence of finite verbs to the rightmost clause, while
all preceding (non-relative) clauses have the verb appear as a non-finite
'absolutive'. Recent discussions of these and other phenomena may be found
in Emeneau 1956, 1965, Gumperz & Wilson 1971, Masica 1974, Ramanujan &
Masica 1969. Compare also vol. 3 of the International Journal of Dravidian
Linguistics, pp. 1-230, with a rich cumulative bibliography on pp. 231-45.
0.2:   Considering the massiveness of this present-day convergence, it
is only natural to assume that it must be the result of centuries, if not of
millenia, of quite intimate bilingual contact. And it is equally natural to
speculate on the period when the developments leading to this convergence
must have begun. In terms of the history of Indo-Aryan, did they begin at
the time of the earliest extant texts, the Vedic saṃhitās, especially the
oldest among them, the Rig-Veda? Or did they take their course only in a
later, post-Vedic period?
    In addition, it is natural to speculate on the direction of the conver-
gence in its early stages. Was it a mutual convergence, as it is usually en-
countered in present-day India (cf. e.g. Gumperz & Wilson 1971) ? Or was
it mainly a unidirectional convergence comparable, say, to that between
Czech and German?
    0.3:   There is a vast amount and variety of literature addressing it-
self to these questions. As early as 1833, Pott considered the dental/re-
troflex contrast of Sanskrit at least partly due to the influence of the

'autochthonous' languages (78),[2] later specifying these as Drāvidian (1836: 19, 453). In 1856, Caldwell made similar claims (38). As time progressed, the number of linguists subscribing to this view and adding other features of (Rig-)Vedic or post-Vedic Sanskrit considered the result of Dravidian influence steadily increased.

In 1921, Przyluski added another possible source for some of these phenomena, namely Munda. Lévi (1923) added further weight to the assumption that Munda at one time must have been very influential in the South Asian area. As a consequence, it was for some time considered possible that Munda, as well as Dravidian, may have contributed to the specifically "Indian" features of Sanskrit (such as the dental/retroflex contrast); cf. e.g. Bloch 1934:53-4. As a matter of fact, Pizzagalli (1929:165-7) believed that only the Munda languages could be the source for Indo-Aryan retroflexion. In the more recent literature, however, the influence of Munda is considered to have been minimal at best, Dravidian being cited as the only probable source language; cf. e.g. Emeneau 1956, 1962a, 1974, Kuiper 1967a.

0.4: There is thus a long tradition of explicitly or implicitly answering the question concerning the beginning of the South Asian convergence to have been pre-Vedic (since the dental/retroflex contrast occurs already in the earliest, Rig-Vedic texts). Moreover, at least for the early, Vedic period, there is a tacit agreement that the convergence was unidirectional, from Dravidian (or Munda) to Sanskrit. At any rate, except perhaps for the area of vocabulary, no attempt seems to have been made to identify any instances of early convergence in the opposite direction.

0.5: This view, however, has not remained unchallenged. There has been a small, but constant flow of linguistic opinion according to which, especially in view of our present ignorance about the full linguistic panorama of early India, it is hazardous to attribute convergence only to a Dravidian (and/or Munda) substratum: There may have been other languages which could have been the source for at least some of the phenomena. (Cf. e.g. Bloch 1929:731-2, 1934:322-4, Mayrhofer 1953:233-4, Thieme 1955:436-48.[3]) In light of the fact that even today we find the isolated Burushaski in the South Asian sprachbund, this cautionary attitude seems to be justified.

Some linguists even have completely rejected the hypotheses advocating early substratum influence, and have claimed that the developments in ques-

tion can be accounted for as native, without any need for assuming an out-
side, non-Indo-Aryan substratum; cf. e.g. Bühler 1864, Bloch 1925:16, 29.

Finally, other linguists, accepting the view that (some of) the phe-
nomena in question can be accounted for as regular, native developments, pro-
posed that at most, the substratum language(s) accelerated or 'helped' these
developments; cf. e.g. Konow 1903:455, 1906:279, Bloch 1929:723-4, 1934:53-4
(thus changing his earlier, 1925 view), Burrow 1955:95-6.

0.6: The purpose of the present paper is to critically examine the
evidence and the major arguments brought forth in favor of these conflicting
views. Specifically, it will be concerned with determining whether the hypo-
thesis can be considered acceptable that the South Asian convergence began,
in a unidirectional fashion, as early as pre-Rig-Vedic. In view of our pre-
sent state of ignorance about (alternative possibilities within) the <u>full</u>
linguistic panorama of early India, it will be held that this hypothesis can
be considered acceptable only if it can be shown to be established <u>beyond</u>
<u>a reasonable doubt</u>.

1: FEATURES ATTRIBUTED TO (EARLY) CONVERGENCE

1.1: <u>Vocabulary</u>: Evidence for both Dravidian and Munda borrowings has
been frequently adduced. Cf. e.g. the lists in Kuiper 1948, 1955, Burrow
1955:378-9 (Munda) and 380-6 (Dravidian), Thumb-Hauschild 1958:122-4.

The evidence for Dravidian borrowings is especially prominent in later
Sanskrit; cf. e.g. Class. Skt. mīna- 'fish'. It is generally admitted to be
rather limited in the Rig-Veda, which offers <u>ulūkhala-</u> 'mortar', <u>kuṇḍa-</u>
'pitcher', <u>mayūrī-</u> 'peahen'.

On the other hand, the evidence for Munda borrowings seems to be more
prominent in Rig-Vedic, where forms like <u>lāṅgala-</u> 'plough', as well as per-
sonal names like <u>Śámbara-</u> (passim), according to Mayrhofer (1951:58-9) the
perhaps most important [human] opponent of Indra, <u>Árbuda</u> (7x), <u>Sṛbinda-</u>
(8:32:2) can be found. (The ratio between Rig-Vedic Munda and Dravidian bor-
rowings listed in Kuiper 1955 is, roughly, 2 : 1.)

One pervasive difficulty with these lexical borrowings, however, is the
fact noted by Kuiper (1948:8-9 and esp. 1955:139) that there seems to have
been a good deal of lexical borrowing also between Munda and Dravidian, mak-
ing it 'nearly impossible to decide, on the evidence now available, whether
[many individual words] originate in Munda, or in Dravidian ...' Thus, while

ulūkhala- is by some attributed to Dravidian (cf. Burrow 1955:380), others consider it Munda (cf. Kuiper 1955, where Dravidian origin is considered no more doubtful). However, these uncertainties of attribution are not considered serious enough to preclude the conclusion that there is evidence, as early as Rig-Vedic, for both Dravidian and Munda borrowings.

1.2: Retroflexion: As stated earlier, there is a long tradition of considering the dental/retroflex contrast of Sanskrit (cf. vit 'knowledge' vs. viṭ 'clan') the result of substratum influence. In those cases where it is possible to account for retroflexion in terms of regular phonetic developments (cf. 4.3.1 and 4.3.4 below), to be sure, some linguists have maintained that the influence of the substratum may have acted only as an accelerating catalyst. However, there are in Sanskrit many instances where instead of an expected regular dental we find a retroflex; cf. RV atati 'wanders' vs. later aṭati (id.). Such instances of "sporadic" or "spontaneous" retroflexion can be found as early as Rig-Vedic; cf. RV sthūṇa- 'pillar' vs. OPers. stūnā-, Av. stuna-. It is evidence of this sort which is considered most probative; cf. 2.2.1 below. (For retroflexion in general, cf. e.g. Bailey 1961, 1963, Bhat 1973, Bloch 1934, Emeneau 1954:283, 1974:92-3, Konow 1903:455, 1906:279,[4] Kuiper 1967a:91 (with 1967b), Lewy 1913:116-7, Southworth 1971:261, Thumb-Hauschild 1958:123.)

1.3: Absolutives: Beside the "Indo-European" type of construction yat kuṇḍam akarod (sg. 3 impf.) devadatto 'pibat 'when he (had) made the pitcher, D. drank', Sanskrit also offers constructions of the type kuṇḍaṃ kṛtvā (abs.) devadatto 'pibat 'having made the pitcher, D. drank', where the absolutive is non-finite and bears no overt syntactic relationship to any other constituent of the sentence. Especially in later Sanskrit, extended syntactic structures may offer-!chain!≠like series of reduced clauses with absolutives, and a finite verb occurring only in the rightmost clause. This type of construction is generally considered the result of Dravidian, more rarely of Munda influence; cf. e.g. Bloch 1929:733-5, Master 1930:105, Thumb-Hauschild 1958:124, Kuiper 1967a:95-7.

1.4: Participles as finite verbs: In the history of Sanskrit, we find an increasing use of (past) participial expressions (usually with omitted copula) instead of the "normal", "Indo-European" finite (past-tense) verbs; cf. "IE" devadattaḥ kuṇḍam akarot vs. participial devadattena kuṇḍaṃ kṛtam (asti) 'D. made a pitcher'. (This development is traced very carefully in

Bloch 1906.) Especially in earlier discussions, this development has been attributed to Dravidian influence; cf. e.g. Konow 1903:456-7, Lewy 1913:116-7, as well as the more recent Thumb-Hauschild 1958:129.

1.5: Nominal style: In addition to the device of using absolutives or participles, (post-RV) Sanskrit eliminates finite verbs (and reduces clauses) also by means of nominal syntax, as in gataye (sg. D of abstr. noun gati- 'going') 'for, to going' = 'in order to go; so that I (etc.) may go'. This is often combined with a high degree of compounding, eliminating inflection- al endings on all but a few nouns per clause (and virtually eliminating fin- ite verbs); cf. vidarbha-nagara-gati-sambhava-iccʰan (sg. N m.) 'desiring possibility (of) going (to) city (of Vidarbha' = 'he desires to go to the city of Vidarbha'. Compounds of this sort can grow to extreme lengths (ap- proaching 30 members or more) in the later language. This increasing tenden- cy toward nominal style has been attributed to (Dravidian) substratum in- fluence, especially in earlier discussions; cf. e.g. Lewy 1913:11⁶-7, Master 1930:105, Thumb-Hauschild 1958:108, 124.

1.6: SOV: The fact that in Sanskrit the order Subject-Object-Verb is much more firmly entrenched than in the more western IE languages, com- bined with the New Indo-Aryan prevalence of that order, has led especially more recent investigators to the assumption that this "Indian" feature is the result of a (Dravidian) substratum; c.f. e.g. Friedrich 1973 and In Press, Miller 1975. Masica (1974) argues, mainly on modern evidence, for a more general Indo-Altaic sprachbund.

1.7: Quotative iti: The preference of Sanskrit not to subordinate (indirect) discourse, but to have direct discourse, marked off by the (usual- ly postposed) particle iti (originally 'thus') has been attributed to a Dra- vidian substratum. (Examples of this use of iti are found already in the Rig-Veda, as in yá índrāya sunávāma íti āha (4:25:4) 'who says "we will press for Indra" (unquote)'.) Cf. Bloch 1934:325-8 (with some apparent hesita- tions) and especially Kuiper 1967a:91-5. Mayrhofer (1953:355) considered this feature to have originated in a pre-Indo-Aryan and pre-Dravidian sub- stratum.

1.8: āmreḍita-compounds: The distributive use of repetitions (āmre- ḍita-compounds), as in svam svam caritram śikṣeran 'they should learn every one his own duty', has occasionally been claimed to be the result of sub-

stratum influence; cf. e.g. Bloch 1929:733-5, 1934:328, Thumb-Hauschild 1958:124.

1.9: <u>api</u>: One of the newest additions to the phenomena claimed to result from Dravidian influence is the multiplicity of functions of the (inherited) particle <u>api</u>. In addition to being a preverb (its inherited function), the word is also used to mean (1) 'also', (2) 'and' (especially when combined with <u>ca</u> 'and'), (3) concessive 'even' (with or without <u>yadi</u> 'if'), (4) 'totality (vel sim.)' after numerals or quantifiers (as in <u>dvāv api</u> 'two altogether', <u>sarve 'pi</u> 'all (altogether)'), (5) '-(so)ever' after interrogatives (as in <u>ko 'pi</u> 'who(so)ever'). Cf. Emeneau 1974:93-111.

1.10 <u>Caste terminology and usage</u>: The other recent addition of Emeneau's (1974:111-28) is the post-Vedic pattern of making derived feminines from masculine caste names to denote the wife of the masculine term (as in <u>kumbhakārī</u>- 'wife of a <u>kumbhakāra</u>- "potter"', <u>kṣatriyā</u>- 'wife of a kṣatriya') and the quasi-pronominal usage of these terms (as in <u>kṣatriye</u> (sg. Voc.) 'O Kṣ.', addressed by a male kṣatriya to his wife).

2: ARGUMENTS FOR NON-INDO-EUROPEAN, SUBSTRATUM ORIGIN OF THE FEATURES

2.1: As regards <u>vocabulary</u>, it is of course relatively easy to argue for non-native origin in the case of words which cannot be traced to PIE or Proto-Indo-Iranian sources. The only major difficulty is that mentioned in section 1.1 above, namely that it is often uncertain whether Dravidian or Munda should be considered the donor for a given word.[5]

Vocabulary correspondences of this sort, however, merely establish evidence for <u>contact</u>. They do not by themselves prove convergence (nor does their absence necessarily disprove possible convergence). Still, evidence of this sort is important in prehistoric arguments, since one should presumably be able to demonstrate that two languages considered to have undergone convergence were in fact in contact.

2.2: What has generally been considered proof for <u>convergence</u> is the argument that the features listed in section 1 above are (a) innovations of Sanskrit and (b) inherited in Dravidian (or Munda). In addition, the general, though often implicit, argument is that the features in question are alien to Indo-European.

While at one time, both Dravidian and Munda were considered possible

sources for at least some of these features, the tendency now is to consider
only Dravidian a possible source. In the following I will briefly summarize
the individual arguments in favor of this latter, more up-to-date position.

2.2.1: Retroflexion: While Proto-Dravidian had a contrast between dent-
al and retroflex (as well as, in some series, a third, alveolar articulation),
Proto-Munda appears to have had a system in which a voiceless dental stop
corresponds to a voiced alveolar stop, with voicing being the basic, dis-
tinctive feature (i.e. [t̪] : [d] like [p] : [b] etc.). Cf. e.g. Bhat 1973:
32 and Zvelebil 1968:252 for Dravidian and Bhat 1973:33, Zide 1969:423 for
Munda. On the other hand, retroflexion is an innovation in Indo-Aryan (and
some of the neighboring East Iranian dialects). Moreover, it is frequently
argued that retroflexion is an un-IE feature, occurring rarely, if ever, in
the other IE languages. This position has perhaps been most strongly argued
by Bhat (1973) who claims that all instances of retroflexion in the non-Indi-
an IE languages for which he had data (Swedish, Norwegian, Faroese, Breton,
and English) may be due to contact with the Uralic languages (40-1) and that
moreover, retroflexion, since it introduces a new feature, can never come
about by normal, native developments, but is either inherited from a proto-
language or due to contact with a neighboring language (in which it may be
inherited or due to contact) (41-2).

Especially the non-regular, "spontaneous" retroflexes of Sanskrit can
be taken as evidence for substratum influence; cf. Emeneau 1974:92-3. Thus,
even if allowances are made for a 'native' development of regular retro-
flexion, there would still remain some evidence for convergence.[6]

2.2.2: Similarly, the use of absolutives is considered an inherited
feature in Dravidian, but an innovation in Indo-Aryan, as well as in Munda.
Cf. especially Kuiper 1967a:95-7 who argues that in Dravidian only absolutive
constructions are possible for subordinate clauses, while in Munda, the nor-
thern languages have constructions morphologically different from those of
the southern languages, with no such constructions attested in the non-Indi-
an Austro-Asiatic languages.

2.2.3: Kuiper (ibid.91-4) offers a similar argument for considering
the use of (postposed) quotative particles inherited in Dravidian, which per-
mits only direct discourse, 'followed by a word which means "having said",

e.g. Tamil enṛu ..' On the other hand, only some of the Munda languages have quotative particles which, moreover, dialectally disagree in structure and formation. As for Indo-Iranian, Iranian only shows uiti 'thus' + verb of speaking (SAY) either preposed or inserted into the direct discourse, but not postposed. In addition, already Rig-Vedic offers instances of clearly quotative iti without accompanying SAY. These facts, in his view, show that postposed quotative iti is a substratum-induced innovation.

2.2.4: Similar arguments for SOV as being the result of Dravidian influence are found in Friedrich In Press. Cf. also Masica 1974 who argues for a larger, Indo-Altaic sprachbund and who adds the specific argument that the SVO of modern Kashmiri may possibly be an archaic relic (174), while--one infers--the Sanskrit SOV would be substratum-induced.

2.2.5: api: According to Emeneau (1974:111), 'None of the Sanskrit structure [of api] is inherited straightforwardly from Indo-European, or even from Indo-Iranian.' Moreover, since usages (4) and (5) (cf. 1.9 above) are not found before the Classical period, we must here be dealing with an 'innovatory development within the history of Indo-Aryan.' On the other hand, as he convincingly demonstrates (104-10), in Dravidian a postpositive particle *-um can be reconstructed for the proto-language, with all the five meanings of Skt. api.

2.2.6: Emeneau (ibid.111-28) advances a parallel argument for Dravidian origin of the feature of special caste terminology and usage. In his view, this pattern must be indigenous to India, since the caste system is indigenous. Moreover, this pattern does not emerge before the post-Vedic period, indicating an innovation. As for Dravidian, he does however admit one difficulty: The feature under discussion, to the extent that it is found in 'the Central Dravidian material from the backwoods areas of Central India, where the aboriginal social structure is tribal', rather than caste-oriented, is Indo-Aryan, not Dravidian in nature. Still, he considers it most probable that the feature did emanate from the sociologically more advanced Dravidians living 'in the riverine plains of North India ...'

2.2.7: The distributive use of āmreḍita-compounds, as well as the tendencies toward using participles as finite verbs and toward nominal style are now not normally cited as Dravidian in origin; but cf. Thumb-Hauschild 1958:124 where the former two features are, presumably on the basis of similar arguments, claimed to be attributable only to Dravidian, while the latter

is considered derivable either from Munda or from Dravidian. Lewy (1913: 116-7) more explicitly considered the use of participles as finite verbs modeled on the essentially participial nature of the Dravidian verb, while nominal style, with its sharp reduction in nominal inflection, in his view mirrors the frequent Dravidian use of uninflected nominal stems.

2.2.8: The balance of the arguments discussed in 2.2.1-7 thus is clearly in favor of Dravidian, not Munda origin for the Sanskrit features in question.

2.3: Corroborating evidence for the view that Sanskrit was--and could be--influenced by Dravidian at a very early time is often considered to lie in the fact that, though most of the attested Dravidian languages are spoken in the south, with some located in the relic areas of the Central Highlands, one language--Brahui--is found in the northwest of the subcontinent, in Baluchistan, i.e. in an area close to that first occupied by the Indo-Aryans. Cf. e.g. Southworth (1971:256-7) who, referring to Dyen 1956, claims that lexicostatistic evidence shows that this northerly position must be old. The relative 'continuity in dominant physical type on the subcontinent from the stone age up to the present day' in his view further shows that the whole area, from Brahui to the Southern Dravidian languages, once was solidly Dravidian and that today's vast intervening stretches of Indo-Aryan are the result of an absorption, not a replacement, of the native Dravidian population by the Indo-Aryans. This, of course, would make Dravidian substratum influence on (early) Indo-Aryan eminently possible.

2.4: It is further often assumed that Dravidian must have been the language of the Indus Valley Civilization which is generally thought to have flourished from 2500 to 1500 B.C. and which is frequently believed to have been destroyed by the invading Indo-Aryans; cf. e.g. Southworth ibid. The best arguments for considering the Indo-Aryans the destroyers of the Indus Valley Civilization have been summarized by Burrow (1975): The Vedic war god Indra is known as puraṃdara- 'destroyer of cities'; Agni, the fire god, is also prominently mentioned in the Rig-Veda in this connection, 'understandably, since many of the Indus cities appear to have been destroyed by fire.'; finally, there are numerous Vedic references to an indigenous population, the Dāsas or Dasyus, 'and to the occupation of their land and the capture of their possessions' (25). The view that these Dāsas or Dasyus more likely were Dravidians than Mundas was supported by Kuiper (1955:139-40)

with the argument that 'higher civilizations of Austro-Asiatic peoples seem only to have arisen under foreign influence.'

2.5: Any argument for Dravidian origin of a given feature which is based on considering that feature inherited in Dravidian but innovated in Indo-Aryan presupposes the--usually only implicit--assumption that the dialectal dissolution of Proto-Dravidian had taken place before the arrival of the Indo-Aryans. Otherwise, the possibility cannot be excluded that the convergence took place in the opposite direction, that Indo-Aryan innovations penetrated Proto-Dravidian, and that this accounts for the 'inherited' appearance of the feature in the Dravidian languages. The fact that Andronov (1963) determined, on the basis of glottochronology, that the split between (the ancestor of) Telugu and (that of) Brahui took place ca. 4100 B.C., i.e. some 2600 years before the earliest normally admitted arrival date of the Indo-Aryans, would seem to provide some explicit foundation for this assumption.

2.6: There is, finally, some more tangible, direct evidence for Dravidian influence on Indo-Aryan in late Vedic and especially in classical times. This evidence, however, is limited to the south of India which even today is Dravidian. In this area we find both evidence for simple substratum influence on Sanskrit, such as the change of Skt. ḷ to ḷ (cf. Wackernagel 1896: 256, Caland 1906:302-3), as well as more general syntactic features which violate the rules of Sanskrit (cf. Caland 1926) and downright code mixing and code switching (cf. Wackernagel 1896:lv, Mayrhofer 1953:231-2).

3: CRITIQUE OF THE PRO-DRAVIDIAN ARGUMENTS

3.1: Although in the area of <u>vocabulary</u> there is ample evidence for Dravidian borrowings in post-(Rig-)Vedic (but cf. also further below), for the early, Rig-Vedic period the evidence is far from overwhelming.

Of the 77 items listed in Burrow 1955:378-86, only 12 occur in the Rig-Veda. Of these, 8 occur in the notoriously late first and tenth books (úlapa- 'shrub', ulúkhala- 'mortar', káṭuka- 'sharp', kúṭa- 'hole', khála- 'threshing floor', pínḍa- 'lump', bíla- 'hole', mayūrī- 'peahen'). Also danḍá- 'stick' (7:83:6) occurs in a late hymn. Only three occur elsewhere, namely kunḍá- (in kunḍapáyya- (8:17:13), a proper name of Indo-Aryan compound structure), pan- 'bargain, wager' (if in paní- (passim) 'merchant; miser; anti-Aryan'), bála- 'strength' (passim).[7]

More importantly, Thieme (1955:436-48) expressed to my mind justi-
fied doubts about many of the allegedly Dravidian etymologies.

In the first place, he pointed out that there is ample evidence that the
Sanskrit tradition was so puristic that even non-Sanskrit Indo-Aryan words
were considered mleccha- 'barbaric' and thus to be avoided. Moreover, the
early Sanskrit grammarians, while making reference to other Indo-Aryan or
even Iranian dialects, make no mention at all of any Dravidian dialects.
In addition, many of the allegedly Dravidian words can be accounted for in
terms of Indo-European or native Indo-Aryan etymologies. Cf. e.g. ulūkhala-
which occurs in a 'hymn designated for recitation at a simple ceremony', in
domestic ritual, 'in the presence of the wife'. Thieme proposed to therefore
consider the word a non-educated, woman's-language word (with "popular" l
for "hieratic" r⁸), corresponding to an educated, and completely native,
*urū-khara- 'having a broad khara- "stomping ground"'. For other words, like
mayūrī- 'peahen' (from mayūra- 'peacock'), Thieme thought that they may well
not be native Indo-Aryan in origin, since e.g. peacocks are not found in pre-
Indian IE territories and since the final -ūra- recurs in other etymological-
ly opaque forms, such as masūra-'lentil'. While words of this type thus may
be borrowings, one cannot be certain that they must be from Dravidian. Con-
clusive proof for such an assumption would in Thieme's view have to consist
in showing e.g. that (a) there was a Proto-Dravidian form mayūra- (vel sim.)
meaning 'peacock' and (b) that this form consisted of meaningful Dravidian
elements or that, at least, its component parts (such as -ūra-) recur in a
morphologically meaningful way in other, clearly native Dravidian words.
Without such proof, the possibility cannot be excluded that Dravidian cog-
nates like Tam. mayil are loans from Sanskrit (or another Indo-Aryan dialect).
-- What is interesting in this respect is that Bailey later showed that there
is a cognate of mayūra- in the Middle Iranian dialect of Saka, namely
mur-āsa- 'peacock', which 'is not a recent borrowing from Sanskrit' and whose
phonological relationship to Skt. mayūra- follows a highly archaic, Proto-
Indo-Iranian (or even PIE) pattern (1975:59). This might well suggest that
the word for 'peacock' was borrowed into Indo-Iranian prior to the Indo-Aryan
arrival in India and that the Dravidian cognates are in fact borrowings from
Indo-Aryan.

While there is thus no evidence for 'etymologizability' (within Dravid-
ian) of the alleged Rig-Vedic Dravidian borrowings, at least one of the Rig-
Vedic words considered a Munda borrowing, lāṅgala- 'plough' (4:57:4, a hymn
of the middle period), is 'etymologizable' within Munda: Its cognates in
the later Sanskrit and Pāli borrowings hala- and na-ṅ-gala-, as well as its
Munda (Santali na-hel) and non-Indian (!) Austro-Asiatic cognates (Khmer
a-ṅ-kāl, Malay te-ṅ-gala) exhibit typical Austro-Asiatic morphology and mor-
phophonology, namely varying prefixes and/or variation between prenasalized
and simple root-initial segments; cf. e.g. Mayrhofer 1953:239-42, 1963:
10-11.[9] In addition, already Lévi (1923) showed that many of the non-Indo-
Aryan tribal names mentioned in Sanskrit, including Rig-Vedic, correspond in

a systematic fashion to other tribal names from which they differ only in terms of their prefixes; cf. e.g. (post-RV) Pulinda- : Kulinda-, Kosala- : Tosala-, Aṅga- : Vaṅga- [cf. RV vaṅgṛda- (?) (1:53:8), the name of a "demon", i.e. of an enemy of the Aryans and their gods]. As Lévi pointed out, the formational process differentiating these pairs is unknown in IE and in Dravidian, but is native to (Austro-Asiatic) Munda. According to Lévi, it is even possible to give Austro-Asiatic etymologies for many of these names. What is especially interesting in the present context is the fact that geographically, these tribal names form a chain extending from the eastern border of Kashmir to the Central Mountains where even today, Munda-speaking tribes can be found.

Add to this the fact mentioned in 1.1 above, that the Rig-Vedic Munda forms include personal names, including that of Śámbara, the perhaps most important human opponent of Indra (and his Aryan followers), and the case seems to be overwhelmingly in favor of early contact between Munda and Indo-Aryan; cf. e.g. Mayrhofer 1951:58-9. On the other hand, the apparent absence of 'etymologizable' vocabulary (and names) of Dravidian origin casts considerable doubt on the assumption of early Dravidian/Indo-Aryan contact.

Even for the later, Classical period, Bloch (1929) made the intriguing suggestion that the Dravidian words of that period may have been 'imported into classical Sanskrit by individual literary men' who may have been from the Deccan. 'What leads me to suspect that some of the words found in classical Sanskrit may be considered as provincialisms, rather than as real borrowings is this: some of the most characteristic borrowings ... are missing in the [modern] vernaculars.' Cf. nīra- 'water', toya- (id.), mīna-'fish', eḍaka- 'ram', heramba- 'buffalo' which have all 'disappeared, if they ever did really exist.' Except for eḷaka- 'ram', they are not even found in Pāli; and Hindi has reflexes only of the corresponding Indo-Aryan words: pānī 'water', machlī 'fish', merhā 'ram', bhĕs 'buffalo'.[9a] If Bloch is correct, we may well be dealing with further instances of the regionally limited, and relatively late Dravidian influence on Sanskrit noted in 2.6 above.

3.2: The evidence just presented additionally casts doubt on the claim that the northwest, the area first settled by the Indo-Aryans and, as we have just seen, previously apparently settled by Mundas, was Dravidian territory and that the present-day location of Brahui is a relic position.

As a matter of fact, as early as 1925, Bloch suggested that Brahui may possibly have (re-)migrated to the northwest from an area further south. He noted in this context that Brahui is closely related to the more southerly dialects of Kurukh and Malto. (Cf. also Bloch 1929:731 with additional argu-

ments.) Moreover, as Emeneau (1962b:62-70) showed, Brahui, together with its Central Indian relatives, Kurukh and Malto, does not form the most archaic, relic-like offshoot of Dravidian (which rather is to be found in the Kui/Kwi subfamily).[10] Even for the more southerly Kurukh and Malto, Bloch (1946: xxviii) suggested that they are 'new arrivals' in Central India, that they are native to the more southern Karnatak, 'and some of their villages have Munda names.'

Finally, Dyen's (1956:625) lexicostatistic evaluation of the status of Brahui does not, as Southworth claimed (cf. 2.3 above), necessarily support an original northern position for the language: '... there is a choice whether Brahui was separated from the other languages by the Indo-Aryan invasion or whether it represents a migration. Since a negative migration cannot be ruled out, the two inferences are equally probable.' (Among historians, there is at least one seriously considered theory according to which the Dravidians may have settled (by sea) directly in South India, at roughly the same time as the Indo-Aryans arrived (by land) in the northwest; cf. Nilakanta Sastri 1966:48-65.)

3.3: It is further questionable whether the Indo-Aryans destroyed the Indus Valley Civilization:

The archaeological evidence now available indicates that 'there was an appreciable time lag between the end of the Indus civilization' and the next chronological layer, the "Cemetery H" people (whose alleged identity with the Indo-Aryans is still a matter of controversy, if not doubt) and that moreover there is no basis for the belief that the Civilization came to a violent end; cf. Lal 1975:19. As for the Vedic references to the pūr's of the Dāsas or Dasyus (and to Indra as the puraṃdara-), the pūr's seem to have been simple wattle palisades (cf. most recently Schneider 1971:3,14), and the Dāsas or Dasyus were most likely an Iranian (!) tribe whose name is etymologizable within Indo-Iranian from the word dasa- (RV 1x), Ir. daha- whose original meaning was 'man, male person' (cf. Bailey 1959:107-15).

3.4: Nor is it certain that Proto-Dravidian must have antedated the arrival of the Indo-Aryans.

In the first instance, the findings of Bergsland & Vogt (1962) cast considerable doubt on the reliability of the glottochronological method on the basis of which Andronov (1963) reached his conclusions. Further, as I hope to have shown elsewhere (In Press:§3.2), the very theory of glottochronology is doubtful, because it rests on a dubious analogy. Finally, McAlpin (1975: 114) justly criticized Andronov's paper by pointing out that since all the Northern Dravidian languages (and many of the Central languages, as well) 'are swamped with Indo-Aryan (or Iranian) loanwords and structures ... (a) fixed rate of replacement does not hold' for these languages. He further states that in his view 'the separation of Elamite and Dravidian [cf. 3.7.2 below] seems to be of the same order of magnitude as that of English and Swedish.' But he adds that 'any such dating attempts are really premature.'

3.5: The evidence so far examined thus strongly favors Munda as the language of first contact for the "invading" Indo-Aryans. At the same time, it casts considerable doubt on the theory that Dravidian was the language of first contact. As a consequence, it becomes difficult to consider as established any hypothesis which attributes to Dravidian influence any of the features found already in Rig-Vedic, viz. retroflexion, absolutives, the use of participles as finite verbs, SOV, quotative _iti_, and some of the uses of api.

On the other hand, for the reasons given in 2.2.1 above, it would be difficult to account for retroflexion as due to Munda influence.

However, a case could be made for Munda as (one of) the source(s) for "spontaneous" retroflexion. Emeneau (1974:93) has attributed this feature to 'Mistakes [made by native speakers of Dravidian] in the assignment of Sanskrit pure dentals to their own retroflexes'. While it is difficult to see how native speakers of languages with a dental/retroflex contrast would mistake anyone's pure dentals as retroflexes, the converse is quite conceivable, namely that speakers of a language (such as Munda) which does not have such a contrast might make mistakes in trying to speak a language which has it.[12] This would of course presuppose that Sanskrit already had a (natively developed) dental/retroflex contrast.

3.6: There is in addition reason to doubt the claim that, if the features under discussion are in fact due to substratum influence, they can be explained only in terms of Dravidian sources. At least for some of the features, there are, a priori at least, other possible sources.

One possibility would be to assume a pre-Dravidian, pre-Indo-Aryan substratum from which both language groups could have acquired the features in which they agree. Thus, Mayrhofer (1953:233-6) attributed the use of absolutives and quotative iti to such a substratum. One might even toy with the idea of attributing all of the features to such a substratum. However, in the absence of any evidence for contact with such a substratum, any such theory has to remain mere speculation.

A more attractive alternative source would be Uralic which, on the evidence of vocabulary correspondences, is known to have had early contacts with Indo-Iranian; cf. e.g. Jacobsohn 1922. If it were to be assumed that this contact took place mainly with the Indo-Aryan and Eastern Iranian subbranches of the family, one might try to account for the retroflexion found in these dialects, as well as the absolutives and the prevailing SOV order, as the result of Uralic influence.[13] For at least according to some linguists, Uralic had retroflex consonants (assibilated stops, perhaps also ḷ and ṇ); cf. Collinder 1960:51,68,73. Further, absolutives are found in many of the Uralic languages (Collinder 1957:38,210,and passim) and the syntactic phenomenon of 'various constructions with verb nouns' in the place of "IE" dependent clauses has been reconstructed for Proto-Uralic (cf. Collinder 1965:64);

and OV order is considered the usual order of Uralic (ibid.62).

However, the case for Uralic retroflexion is controversial; cf. the pro-
bably justified doubts in Raun 1971:39-42. Moreover, absolutives are found
also in Chinese, Japanese, Korean, Altaic (cf. Emeneau 1956:9), as well as
in Tibetan (Jacobi 1897:96-7), making it virtually impossible to pinpoint a
particular language as the source for this feature. Similarly, as Masica
(1974) has shown, SOV is found in a large area which, in addition to Dra-
vidian (and other South Asian languages) and many of the modern Uralic
languages, also prominently includes Altaic.

As for the (postposed) quotative marker, we find this feature not only
in Dravidian, but also in the possibly related (cf. 3.7.2 below) Elamite
(cf. Kuiper apud McAlpin 1975:111), as well as in Tibetan (Goldstein & Kashi
1973:114-5), Burmese (Okell 1969:119 and 150-1). Moreover, quotative par-
ticles--which, as in Dravidian and those Munda languages which have them,
seem to be derived from the verb SAY--can also be found in non-Indian (!)
Austro-Asiatic langugages; cf. Mon makèh (postposed), related to kèh 'say'
(Shorto 1962:77 and 171); Nicobarese ñə̃(h) (pre- or postposed) [related to
añah?ə̄ 'said' (?)] (Braine 1970:230); Cambodian thaa (preposed), lit. 'to
say', direct and indirect discourse marker (Ehrman & Sos 1972:29-30). These
extra-Indian attestations of quotative particles cast doubt on Kuiper's argu-
ment that in those Munda languages where it is found, the quotative is an in-
novation modeled on the Dravidian quotative; it is now quite possible that
the quotative pattern (even if not all of its lexical realizations) is nat-
ive also to Austro-Asiatic and thus to Munda.

There are thus, at least for the features of retroflexion, the abso-
lutive, participles as finite verbs, SOV, and the quotative, numerous other
possible sources, beside the Dravidian one usually recognized. Also in this
regard, it thus becomes hazardous to take Dravidian origin for granted.

3.7: In recent years, the question of possible outside relationships
of Dravidian has been taken up again. And because of the excellent progress
made in working out the internal relationships of Dravidian and in recon-
structing the vocabulary and grammar of the proto-language, the recent at-
tempts to answer this question appear more acceptable than earlier ones, al-
though the proposals so far made still arouse some controversy (cf. the spir-
ited debate apud McAlpin 1975).

Two such connections have been made, one with Uralic (cf. Tyler 1968)
and the other with Elamite (cf. MacAlpin 1974, 1975). In addition, McAlpin
(1975:114) has raised the possibility of closing this triangle, by showing
also a Uralo-Elamite relationship.[14]

3.7.1: After briefly outlining the general structural agreements be-
tween Uralic and Dravidian, including the fact that 'Negation is expressible
by an auxiliary negative verb ...', and after indicating that there is phono-
logical agreement in a number of nominal and verbal affixes, Tyler went on

to give a list of 153 etyma showing systematically recurring phonological
similarities and differences. More than 50% of these seem to be basic
vocabulary, including body parts and kinship terms. Moreover, about 50%
(not necessarily identical with the 50% just mentioned) seem to belong to
the vocabulary most easily establishable as cognate and inherited <u>within</u>
the Uralic family. As Tyler no doubt correctly argued, such a massive
agreement, especially in basic vocabulary, makes anything but genetic rela-
tionship highly improbable. Unfortunately, Tyler did not try to reconstruct
at least part of the proto-system in terms of which these similarities might
be accounted for in a systematic fashion. However, even barring this ultim-
ate proof of genetic relationship (given a broad enough data basis), his ar-
gument could be strengthened by pointing out not only that both Dravidian
and Uralic (can) express negation by a finite negative auxiliary verb, but
that at least one of these negative auxiliaries exhibits a systematic phono-
logical matching between the two language groups, viz. Ur. äl- : Drav.
al(1)- (cf. Tyler 1968:801 and 804). Considering that finite-verb negation
(as distinct from negation-through-particle) is by no means a common pheno-
menon, the <u>phonological agreement</u> between Uralic and Dravidian in this res-
pect would seem to constitute the type of shared morphological (or syntactic)
anomaly which Meillet (1925:27) justly considered most probative in estab-
lishing genetic relationship. That is, the conclusion is virtually inescap-
able that the two language groups are related.

Under these circumstances, the fact that the correspondences between
Uralic and Dravidian include sets like the following

$$
\text{Ur. } -\gamma- \quad : \quad \text{Drav.} \quad \left\{ \begin{array}{c} -r- \\ -\underset{\cdot}{r}- \\ -\underline{r}- \end{array} \right\}
$$

$$
-\delta- \quad : \quad \left\{ \begin{array}{c} -t- \\ -\underset{\cdot}{t}- \end{array} \right\}
$$

$$
-t- \quad : \quad \left\{ \begin{array}{c} -t- \\ -\underset{\cdot}{t}- \\ -n\underline{r}- \end{array} \right\}
$$

where in medial environment, Dravidian always has at least two sets (dental

and retroflex) corresponding to a single (usually dental) set of Uralic,

takes on special significance. For though it is possible that Dravidian

here preserves an ancient distinction which was lost in Uralic, there is

another, perhaps preferable conclusion, namely that Uralic is archaic in this

respect and that it is Dravidian which exhibits an innovation, a split of

what originally was a single set. Such an assumption, even if not amenable

to proof at this point, at least would account for the defective distribution

of the Dravidian retroflex segments which, as is known, do not occur in ini-

tial environment.

3.7.2: This view tends to be corroborated by McAlpin's work. After a general comparison of the morphological and syntactic similarities between Dravidian and Elamite, McAlpin (1974) showed that the defective distribution of Dravidian retroflex and alveolar stops (which do not occur initially) is accounted for by the fact that the comparative Elamo-Dravidian evidence indicates that Dravidian t̪ and n̪ are in many cases derived from rt and rn clusters (which remained in Elamite). In addition, a dark ɫ of the proto-language turns into Dravidian retroflex l̪. There are, moreover, other sources for Dravidian retroflexes: Both t and l change to t̪ and l̪ between a front vowel and a following vowel.

Unlike Tyler, McAlpin does offer reconstructions and, as the preceding paragraph has shown, establishes the sound changes which relate the reconstructed forms to the attested forms. However, the cognates upon which the reconstructions are based are somewhat sparse: There are only 57 (or 60) such cognates. At the same time, however, these do include basic vocabulary (such as 'help', 'this', 'thou', 'you'). In addition, while his 1974 paper contained little in terms of a comparative morphology and no evidence documenting a shared morphological aberrancy, his 1975 paper does offer the beginnings of a comparative verb morphology. While, as the discussion following his 1975 paper shows, McAlpin's Elamo-Dravidian hypothesis has not yet met with universal approval, the direction his work has taken up to this point--from "mere" vocabulary-based comparison and reconstruction (on a limited data base) to more probative morphological reconstruction--seems to my mind promising and shows that his claims must be taken seriously.

What is interesting in the present context is that McAlpin's work clearly states what, on the basis of Tyler's evidence, could only be suggested, namely that the Dravidian retroflex/dental (or retroflex/dental/alveolar) contrast is just as much an innovation as that of Indo-Aryan. Moreover, while the Dravidian development of rt, rn to t̪, n̪ is quite a natural one (cf. 4.3.6 below), the development of dentals to retroflex in intervocalic environment cannot easily be accounted for as natural, a fact which may be taken to suggest that, like Indo-Aryan, also Dravidian had some "sporadic" developments of retroflex segments.

Thus, even if there is as yet no universal acceptance of Tyler's and McAlpin's hypotheses, it must be concluded that the (mere) possibility that they are on the right track casts doubt on the traditional claim that the retroflex/dental contrast is an innovation only in Indo-Aryan and not in Dravidian.

3.8: Finally, as pointed out already by Bloch (1925:5), the distributional patterns of retroflexion in Sanskrit and Dravidian are quite different: Sanskrit has (rare) initial retroflexion--Dravidian does not; Dravidian has final retroflexion--Sanskrit does not; Sanskrit has a retro-

flex sibilant--Dravidian does not.[15] This discrepancy does not seem to be well accounted for by a theory which attributes retroflexion to convergence (in either direction, one should perhaps add).[16]

4: CRITIQUE OF THE ANTI-INDO-EUROPEAN ARGUMENTS[17]

4.1: As indicated earlier, the arguments for substratum origin of the features participles as finite verbs, nominal style, and distributive use of āmreḍita-compounds are not usually included any more in the more recent literature. They can therefore be quickly dispensed with:

Already Geiger (1893:1-5) showed that the replacement of finite past tenses by past-participial constructions is a phenomenon not limited to Indo-Aryan, but found also in Middle Persian, as well as in Kafiri. (For other (Indo-)Iranian dialects, cf. Morgenstierne 1958:163,165-6.) Meillet (1909) demonstrated similar, though not necessarily identical developments in spoken French, Rheto-Romance, Romanian, many of the German dialects, most of Slavic, and in Armenian. An attempt to account for this wide-spread phenomenon, which is not limited to IE languages, was made by Allen (1964). This feature thus is so solidly an Indo-European (and perhaps universal) phenomenon that Dravidian influence need not be invoked. Moreover, Bloch (1925:8-9) argued that (the Indo-Aryan version of) this feature has no Dravidian equivalent.

As for nominal style, already Jacobi (1903) had stated that this feature tends to be found in all languages which have for a long time established a scientific register: Abstraction of thought tends to be mirrored by the more abstract style of nominal syntax (rather than the more concrete, tense-, mood-, and actor-oriented verbal syntax). Renou (1956b) showed how this style developed in the observable history of Sanskrit and spread beyond its original (and normal) bounds. It is not yet found in the saṃhitās or in Vedic prose; even the language described by Pāṇini still lacks this feature. However, in the late Vedic sūtras, especially in those not limited to religious matters but dedicated also to secular topics (such as phonetics, grammar, metrics, astronomy), this style begins to blossom. Renou showed how this reflects the special exigencies of this literature in which brevity [as well as abstractness] was valued very highly. Due to the influence of this literature on later thought, and especially because Pāṇini (though not sanctioning it for the normal, spoken language) employed this style in his grammar, this feature acquired a literary prestige which permitted it to be used in other, nonscientific literary genres of the Classical period. However, even then it remained essentially genre-bound. (The style is found also in Pāli prose, contemporary with the sūtra literature and similar to it in its subject matter and general objectives.) Renou concluded that we are here dealing with a language-internal, genre-bound, literary innovation for which it would be difficult to assume outside influence. Note further that Davane (1956:46,140-3) has shown that, at least outside of Pāli prose, nominal style does not normally appear in the vernacular Middle Indo-Aryan dialects, except in very late texts which are influenced by the 'ornate style' characteristic of the Classical Sanskrit period. That is, throughout the history of Old and Middle Indo-Aryan, nominal style remained a genre-bound, stylistic feature, never becoming a general feature of the language.

Finally, the distributive use of āmreḍita-compounds has Indo-European ('iterative') parallels and perhaps antecedents; cf. Dressler 1968. Master (1930:140) has given an even more exact parallel from modern Iranian (Pers. yak yak gūsfand-rā mi-kušt 'he was slaying the sheep one by one'. Even Gatha-Avestan already offers distributive reiterations like narəm narəm 'man for man'.

4.2: SOV: The claim that Indo-Aryan SOV must be an area-induced innovation rests on the premise that PIE either had SVO (cf. Friedrich 1973, In Press) or was turning toward SVO (Miller 1975).

4.2.1: In his more recent publication, Friedrich offers an admittedly 'polemical synthesis of the arguments for PIE' as having SVO. His arguments can be summarized as follows.

(a) Beside dominant Adj. + N order, there is sufficient evidence for N + Adj. to cast doubt on SOV for PIE.

(b) As for the relative position of noun and genitive phrase, GN is much less common or dominant than NG, indicating that SOV is less likely than SVO.

(c) In comparative constructions, most of the languages, except Tocharian, Hittite, and Sanskrit (Iranian being uncertain), are in favor of Adj. + Standard. (The location of the Pivot needs to be studied more fully.) Altogether, the evidence for Adj. + Standard is better, supporting SVO.

(d) In relative clause constructions, even the 'eastern' languages have a high incidence of postposed Rel. Cl. Also the introductory relative marker argues for VO.

(e) The IE adverbial particles (Friedrich: 'locative auxiliaries') normally precede the verb, indicating SVO. With respect to the noun, they are usually postpositive in Hittite and Tocharian, although the latter also has prepositive order. In Vedic, they are postpositive by a ratio of 4 : 1, while later on, postpositive order becomes more general, due to 'a long-term drift to the rigid postposing of the modern Indic languages.' (Friedrich considers this drift to indicate an original prepositive order.) Elsewhere, preposing is prevalent. The use of postpositive particles in Greek 'could reflect a partial adjustment to a substratum.' Altogether, then, SVO is the favored order.

(f) The verb more or less follows the pattern SOV, at least in the early stages of Anatolian, Indic, Iranian, Tocharian, Italic, Baltic. But the pattern is not rigid in Hittite and 'weak' in Vedic. If in the modern Indo-Aryan languages we find more regular, though still not rigid SOV, this again shows an Indo-Aryan drift toward SOV. In Old Iranian, the prevalent order is OV, but not strongly so: non-direct and secondary objects, as well as complements may follow the verb. Modern Persian has SOV, but SVO dominates in the colloquial language, indicating a 'reversion' to the VO type. In all of these languages, OV thus is by no means rigid. On the other hand, the majority of languages, including Albanian and Germanic, have VO; Common Slavic basically has VSO (beside SVO), except for West Slavic SOV; Old Armenian has SVO and VSO; Celtic consistently has VSO. As for Old Irish in-

stances of SVO, these are 'marked alternates within a particular literary tradition' (cf. Wagner 1967). Homeric Greek has OV and VO in a ratio of 3 : 2, but Gapping supports SVO. The drift of the language is toward SVO.

(g) The inflected auxiliary normally precedes the nonfinite verb 'in Homeric Greek and the other ancient dialects', indicating SVO.

(h) The negative particles m̄ē, ne, and the augment e- precede the verb, indicating VO.

(i) In compounds, those which exhibit a VO pattern are more archaic than those with OV.

(j) In terms of <u>areal</u> distribution, the SVO languages are central, Baltic SVO being the <u>result</u> of Finno—Ugric influence. SOV (beside vestiges of SVO) is found in the eastern languages, where OV is an areal feature. Similarly for Hittite, located in an area where Sumerian, as well as Semitic Accadian have SOV. That is, in these areas SOV may be substratum-induced. As for Italic, 'The fully developed [SVO] of later Romance may reflect, not the emergence of something entirely new, but the recrudescence and streng-thening of colloquial patterns of great antiquity.' Finally, Celtic VSO may be due to interaction with Proto-Berber or some other 'Afro-European' lan-guage.

4.2.2: Friedrich's arguments are well taken, to the extent that they challenge the overly simplified view that Proto-Indo-European (always) had SOV. However, in many details his arguments are unacceptable.

As for points (a), (b), and (d), we are dealing with features which have no diagnostic value whatsoever (in terms of Greenberg's indices for word order) for arguing against SOV order. As Greenberg (1963:100) clearly stat-ed, the type with SOV and postpositions but N + Adj. and NG is 'very nearly as common' as the 'pure' SOV type exemplified by Turkish. And 'The tendency of relative clauses ... is even stronger than that of adjectives to follow the noun.' This results from 'a general tendency for comment to follow topic.'-- It is thus of no significance that there are instances of N + Adj., NG, N + Rel.Cl.; but it <u>is</u> significant that virtually all the languages also show the obverse order which naturally suggests OV.

As for point (e), the order Adv.Particle + Verb can be said to argue for VO only if the adverbial particle is in fact a (verbal) auxiliary. However, I know of no evidence in favor of that assumption. Friedrich's claim that the postpositional use of these particles in Greek may be substratum-induced is mere supposition. The fact that in their postpositive use, these part-icles by and large retain their Indo-European accent (cf. ápo vs. amphí = Skt. ápa vs. abhí), while as prepositions they do not (cf. apó = amphí) suggests that postposing is an archaism and (proclitic) preposing a Greek innovation; cf. Schwyzer 1939:387-8. Daly (1973) has argued that the archaic survivals of Lat. mecum 'with me' (etc.) in the Romance languages (cf. It. meco, Span. (con)migo) show that postpositions (and thus SOV order) are an IE archaism. Compare likewise the archaic, frozen, postpositive patterns of English and German thereby, wherefore, damit, wodurch.

Concerning Friedrich's verb-position arguments, it should first be noted that also the earliest Germanic had SOV; cf. Smith 1971. For Slavic, Berneker (1900) showed that verb-final order was original in descriptive and general prose and that verb-initial order was employed in lively narration, while verb-medial order originally was used only occasionally, but became more common as time progressed. Wagner's argument that Old Irish SOV cannot be a relic is open to two objections: (a) As Wagner himself noted, the same highly poetic texts which contain SOV also show the synchronically unusual order GN, an order 'harmonic' with, and thus supporting SOV. (b) Even if the SOV (and GN) order were 'mere' poetic devices, such devices hardly ever are free inventions. They usually have real, frequently archaic linguistic antecedents. As for Friedrich's Gapping arguments for Greek, it should be noted that Subbarao (1972 a,b) has convincingly demonstrated that arguments of this sort are of no diagnostic value in determining (underlying) word order. Add to these observations the fact that in Latin and Germanic there is clear, documented evidence for an increasing development from SOV to SVO (cf. Linde 1923, Smith 1971), and Friedrich's case is weakened even further. Friedrich's suggestion that, at least in Italic, this phenomenon may be a 'recrudescence' of an older colloquial SVO type cannot be accepted as it stands. For as Smith (1971:292) and apparently independently Robertson (1975:146-7) have collectively shown, the survival of SOV in dependent clauses in German, Middle English, and Old French shows that SOV is a genuine archaism, surviving in marked function in accordance with Kuryɫwicz's fourth law of analogy, and that SVO is an innovation. Finally, it is by no means clear what is meant by SOV, SVO, VSO in many of the recent discussions of basic word order, Friedrich's probably included. If SOV is meant to refer only to verb-final (XV) clauses, this will provide for different statistics from a count based on the interpretation of SOV as meaning that the verb follows the object (OV). Thus, Fischer (1923) showed that until quite late, Greek was pretty solidly (S)OV although, as Kieckers (1911) had demonstrated, it may be heavily VX. As Fischer showed, the X after the V usually consists of adverbial expressions or other material not strictly-speaking necessary for the completion of the sentence. This is also the pattern established for Vedic by Gondā (1959:7-69); and, as Friedrich recognized, it is found also in Old Persian. It is, finally, apparently still found in Modern Persian (cf. Alavi & Lorenz 1967:32-3,64-5) and seems to be a possible pattern also in Hindi. It may thus well be that Proto-Indo-European had SOV, but not necessarily XV, as its basic, unmarked order.

(Concerning the (subsidiary) point (g), I have the impression that Sanskrit and Latin normally place the auxiliary after the nonfinite verb; and Smith (1971) has plausibly argued for this as the oldest pattern of Germanic.)

4.2.3: At the same time, however, there is, as has long been realized (cf. e.g. Berneker 1900, Kroll 1918), evidence also in favor of VSO, an order found in marked function in virtually all of the IE languages. Miller (1975) convincingly showed that this marked and thus archaic order, in conjunction with the archaic VO-compound type (vs. the usual, productive OV type), points to an early stage at which PIE had VSO as its basic order,[18] and that, still in PIE times, there was a shift from this order to SOV. Note

that this change from VSO to SVO may well account, at least in part, for the
fact that none of the early IE languages is a 'pure' SOV language.

4.2.4: Miller concludes that late PIE was 'in the process of shifting
to SVO', except in the 'eastern' languages where substratum influence may
have inhibited the shift. Like Friedrich's areal arguments, however, this
view cannot be considered conclusively established.

It is true, Masica has shown (1974) that Sanskrit and Tocharian belong
to an 'eastern' ('Indo-Altaic') area with basic SOV, while the western lan-
guages belong to an SVO area. However, this does not necessarily indicate
that it was the eastern IE languages which innovated in this respect (or
resisted a general PIE development). Another interpretation is possible
and, considering the evidence, perhaps preferable, namely that PIE itself
once belong to the 'eastern' SOV area. This would account for the PIE change
from VSO to SVO noted by Miller. (Cf. also 4.5.1 below.) As the 'western'
languages became separated from this area, they may have developed an order
SVO. This would account for the observable increase in this order in histor-
ical times, as well as for the relative archaism of SOV (beside VSO) noted
in virtually all of these languages. As Masica has pointed out, also other,
non-IE languages show such a development once they are located in the 'west-
ern' area. One might attribute this to indigenous substratum influence. Or,
considering that SVO (or at least XVY) seems most advanced in Greek, one
might argue for diffusion of SVO from Greek. But perhaps the most plausible
explanation, considering our ignorance about pre-IE substrata in Europe (in-
cluding Wagner's and Friedrich's Proto-Berber vel sim.), would be to assume
that these western languages had been on the periphery of Masica's 'Indo-Al-
taic' SOV area, only incompletely participating in the area-induced PIE
change of VSO to SOV and retaining VSO to a higher degree than the 'eastern'
languages. In that case, the usual 'western' SVO may be seen as a compro-
mise, a syntactic 'blending' between the older VSO and the innovated SVO
(helped along, perhaps, by a reinterpretation of XVY as SVO), while the Celtic
'recrudescence' of VSO would constitute a genuine 'reversal' in the area
most peripheral to the change from VSO to SOV and thus, perhaps, only tempo-
rarily (and mainly in its poetic language (?)) affected by it.

Whatever the correct interpretation of the 'western' SVO (or VSO) may
be, the argument that PIE had SVO and that Sanskrit SOV must result from the
influence of a post-PIE substratum cannot be considered established.

4.2.5: Notice in this respect that until very late Epic and Classical
times, Sanskrit still shows evidence for (marked) VSO order (as in āsīd rājā
'there (once) was a king') beside unmarked SOV. There is, to be sure, some
evidence for an increase in SOV, or rather XV, over XVY in the prose of the
Brāhmaṇas. However, this development may well be part of the more general,
native trend towards simplifying and 'streamlining' the language by elimin-
ating alternative structures (cf. Hock & Pandharipande To Appear:§2.6.2).

As Gonda (1952) showed, even as late as the Kāvya literature and the Viṣṇu-Purāṇa, XVY still is found as a common pattern.

It is only in the modern Indo-Aryan languages that VSO is eliminated and that XVY is considerably reduced in its occurrence. This may well be due to areal influence, but proves nothing for the early period. Masica's tentative argument (1974) that modern Kashmiri SVO may be an archaism, however, must be considered doubtful. The fact that in relative clauses SOV is the normal order shows that this 'marked' order is more archaic than SVO. Moreover, the evidence in Grierson 1919 suggests that outlying dialects like Kiṣṭawārī have SOV order, a fact which would seem to corroborate the view that the central Kashmiri SVO is an innovation.

4.3: <u>Retroflexion</u>: It is generally conceded that 'regular', non-sporadic retroflexion may, at least in part, be due to internal developments based on Indo-Iranian antecedents; cf. the references apud Kuiper 1967b. The first to have tried to demonstrate this possibility seems to have been Bühler 1864.

4.3.1: The most up-to-date and to my mind most acceptable formulation of this view is found in Burrow 1955:90-5. Burrow's arguments can be summarized as follows.

Dialectal PIE had a change by which <u>s</u> (<u>z</u>) became <u>š̌</u> (<u>ž̌</u>) if preceded by RUKI (hence *<u>nizdo-</u> > *<u>niž̌do-</u> 'nest'; *<u>dwis-to-</u> > <u>dwiš̌-to-</u> 'hated'). In Indo-Iranian, this <u>š/ž̌</u> merged with a <u>š/ž̌</u> developed from PIE palatals before obstruents (and after certain obstruents); cf. *<u>wiḱ-to-</u> > Av. <u>viš̌-ta-</u> 'entered', *<u>pḱu-ment-</u> > Av. <u>fsu-mant-</u> 'rich in cattle'. However, sḱ resulted in in *<u>ss̓</u>, whence *<u>s̓s̓</u> by assimilation (> Av. <u>s</u> as in *<u>g^wm̥-sḱe-ti</u> > <u>ja-sa-iti</u> 'goes.'). In Indo-Aryan <u>š̌/ž̌</u> acquired retroflex articulation, and neighboring dentals became retroflex by assimilation, as in *<u>dwiš̌-to-</u>, *<u>wiš̌-to-</u> > Skt. dviṣṭa-, viṣṭa-. Sibilant sequences, of the type <u>ss</u> (< <u>ṣs</u>), <u>s̓s̓</u>, <u>ss</u>, were subject to dissimilation, yielding <u>ts</u>, <u>c̓s̓</u>, <u>ts</u>. (Due to a very early, PIE simplification, <u>ss</u> and <u>ṣṣ</u> may also appear as <u>s</u> and <u>ṣ</u> in archaisms; and in the locative plural of nouns, they may appear as unmodified <u>ss</u> and <u>ṣṣ</u>, or <u>ḥs</u>, <u>ḥṣ</u>, as the result of a later generalization of external sandhi.) In addition, <u>z</u> became <u>ḍ</u> before <u>bh</u>, as in *<u>wiḱ-bhis</u> > *<u>wiž̌-bhis</u> > <u>viḍbhis</u> 'by the clans', and was lost before voiced apicals. Finally, <u>ts</u> became <u>t</u> by final cluster simplification, but <u>kṣ</u> elsewhere, while <u>c̓s̓</u> was realized as <u>(c)ch</u>. These developments, at least some of them, yielded retroflex consonants which were unpredictable in terms of their phonetic environment. Thus *<u>nizdo-</u> > *<u>niž̌do-</u> > *<u>niẓḍa-</u> > <u>nīḍa-</u> 'nest'; *<u>wiḱ-s</u> > *<u>wiš̌-s̓</u> (cf. Av. <u>viš̌</u> with sibilant degemination) > *<u>viṣṣ</u> > *<u>viṭs</u> > <u>viṭ</u> (sg. N) 'clan' (vs. *<u>wid-s</u> > <u>vit</u> 'knowledge'); but *<u>wiḱ-su</u> > *<u>wiš̌-su</u> > *<u>wiš̌-š̌u</u> > *<u>viṣṣu</u> > *<u>viṭṣu</u> > <u>vikṣu</u>. Similarly *<u>dwis-s</u> 'enemy' becomes <u>dviṭ</u> via <u>dwiṣṣ</u> and pl. L *<u>dwis-su</u> yields <u>dvikṣu</u> via <u>dwiš̌su</u>. (The later pl. L <u>viṭsu</u>, <u>dviṭsu</u> owes its existence to generalization of the pattern established by sg. N <u>viṭ</u>, <u>dviṭ</u>, pl. I <u>viḍ-bhis</u>, <u>dviḍ-bhis</u>.)

4.3.2: To my knowledge, only Kuiper (1967b) attempted to show that this type of regular, internal explanation of retroflexion is unacceptable. However, Kuiper's attempted refutation is seriously flawed both by not considering Burrow 1955 (but only two more recent, less explicit and general papers: Burrow 1959a,b), and by his misreading of the arguments traditionally used.

Thus he inexplicably argues that the postulated change of PIE palatals to Sanskrit retroflexes would wrongly predict PIE *km̥tom to yield Skt. t̬satam* (rather than attested śatam '100'), ignoring the fact that this development--however formulated--was always considered to have been conditioned, and not universal. Similarly, he attributes to Burrow a claim he never made, namely that 'both Skt. kṣ and Av. š̬ derive from *t̬s.'

On the more positive side, Kuiper argues that PIE palatal stop + s yielded 'š̬ in Iranian and kṣ in Indo-Aryan... There is no reason therefore [to doubt] that ... vikṣu represent[s] the normal development of PIE k̑s in Indo-Aryan ... no matter how [the] prestage of Indo-Aryan kṣ and Iranian s̬ is exactly reconstructed.' The 'anomalous' t̬ of sg. N vit̬ (for expected -k from -kṣ) is in his view due to morphological reanalysis: PIE *spek̑s should have yielded spak*; but because of the oblique stem spaś-, a new synchronic base form /spaś-s/ is created. Since /ś/ merges with ṣ before apical stops, it is synchronically changed to ṣ also before the apical -s of the nominative singular ending. In this fashion, stems in ś̬ and in ṣ become more similar to each other. The further development of -ṣ-s to -t̬ results from the following process. The 'conscious will of the speakers to counteract the normal phonetic tendency of their language [to degeminate] and the effort to over-emphasize the ṣ of the [following] morpheme ... led to a realization of the second s as the affricate [ts] , to mark off the beginning of the morpheme boundary ...' Thus, spaś-s, dviṣ-s become spaṣ-ts, dviṣ-ts, whence spaṣ-t̬s, dviṣ-t̬s by assimilation. These forms result in spat̬s, dvit̬s (with a cluster simplification recurring in *vr̥skta- > vr̥kta- 'cut') and, with final cluster simplification, spat̬, dvit̬. (In roots in -ṣ, this development is limited to monosyllabic stems; hence haviṣ-su appears as haviṣṣu/ havibsu.) On the other hand, the analogy of stems in final palatal sibilant (like spaś-) could lead to the appearance of forms in -kṣ- in stems in final -ṣ (such as dvek-ṣya-ti 'will hate' from dviṣ-). That the kṣ (rather than t̬s) of the latter stems is an innovation is evident from the fact that kṣ from ṣs is rare in the Rig-Veda and never found in the locative plural.

·4.3.3: Even Kuiper's positive arguments cannot be considered acceptable.

First of all, his consideration of Rig-Vedic attestations is incomplete. While it is true that we find no Rig-Vedic attestations of a locative plural in -kṣ- from roots in -ṣ, we also find none in the -t̬su predicted by Kuiper. (As a matter of fact, while -kṣ-forms may be rare even elsewhere, there is not even a single Rig-Vedic medial -t̬s-form from a root in -ṣ.) On the other hand, stems in ś̬ or other palatals furnish evidence not only for -kṣu (cf. vikṣu (passim), srākṣu 5:53:4), but also indirectly for -t̬su (cf. anadutsu 3:53:18 which seems to be from anad̬-ut̬-su by dissimilation). It is true, the latter form occurs in a late hymn, while the two former are attest-

ed from the earliest period. The type in -tsu thus probably is an innova-
tion. But as long as we do not have any direct attestations of a locative
plural from ṣ-roots, it is hazardous to argue that the latter furnished
the model for the former.

In word-final position, the earliest Rig-Vedic attestation of a root in
-ṣ shows k (sg. 2 piṇak 6:17:10). This is the only form from ṣ-roots in a
hymn of the archaic period. During the same archaic period, roots in palatal
have final ṭ in seven roots (aś-, rāj- 'king', rāj- 'shine', vah-, ṣaṭ <
*seḱs '6', sah-, spaś-) and only two in k (naś- 'destroy', dṛś-). The first
ṣ-form in ṭ (-dviṭ) appears in a relatively late hymn (6:47:16), at a time
when the palatal roots have considerably increased their k-forms (with nine
instances of k-forms vs. 11 of ṭ-forms, not counting recurrences of the same
form, vs. 2 : 8 in the archaic period). This pattern hardly supports the
view that k is more archaic in the roots in palatal than in those in ṣ, or
the view that ṭ is originally at home only in the ṣ-roots. (If anything, it
might suggest the opposite. But the way of caution would seem to lie in not
overestimating the significance of these statistics.)

Moreover, the question arises as to how one should account for the fact
that forms like PIE *teḱs-ti yield Skt. tāṣṭi and not the tākti* expected if
Kuiper were correct in claiming that PIE *ḱs yields Skt. kṣ. (For the deve-
lopment of kṣt to Skt. kt, cf. PIIr. *abhakṣta 'chose for himself', Av.
abaxšta vs. Skt. abhakta.)

Finally, Kuiper's claimed development of ṣ-s (and similarly of s-s) to
ṣ-ts (and s-ts) seems to lack any known precedent.

4.3.4: These difficulties are removed if we accept Burrow's analysis
with only some minor modifications and additional motivations.

The type vikṣu does in fact seem to be more archaic than the type viṭsu,
not only in palatal roots, but also in ṣ-roots. The innovated type in -tsu
is to be accounted for as an extension of the external sandhi pattern account-
ing for sg. N viṭ, pl. I viḍ-bhis. For these developments, and for what I
believe to be the correct explanation of the bh-case forms (as well as of
the bh-case and locative plural forms of is- and us-stems), cf. Hock 1974.

As for viṭ, -dviṭ vs. -nak, piṇak, the forms with ṭ seem to be more ori-
ginal; the k-forms can be explained as owing their existence to dissimilatory
developments; cf. e.g. Meillet 1905/06.

Forms like tāṣṭi find their natural explanation in a Burrovian deriva-
tion of the sort *ḱs > PIIr. *šṣ > *ṣṣ. While *šš > *ṣṣ usually yields
*ṭṣ (> kṣ or ṭ), in the environment between obstruents the medial sibilant
was lost (as in *abhakṣta > abhakta)--apparently early enough to 'bleed' the
dissimilation of ṣṣ to ṭṣ. The fact that reconstructed ṣṣ and śś were regul-
arly dissimilated to *ṭṣ, *cś, while ss was only sporadically dissimilated to
ts, can be accounted for as due to the absence of a contrast ṣ/ṭ or ś/c be-
fore ṣ and ś, but the existence of a contrast s/t before s; cf. Hock 1975,
with many precedents for the postulated dissimilatory process.

Finally, even the fact that PIIr. š yielded retroflex ṣ in Indo-Aryan,
but not in (most of) Iranian, can be accounted for: The Iranian outcome of
the unchanged PIE palatal *ḱ was s (or ∅); as a consequence, š could be ar-

ticulated as a palatal. In Indo-Aryan, however, *ḱ yielded ś, a palatal sib-
ilant. If IIr. š was to remain distinct from this palatal ś, this could be
achieved quite naturally by articulating š not as a palatal, but as a retro-
flex. That shibilants can be articulated both as palatals and as retroflexes
is well known. The case of German is especially illustrative on this point:
[š] has 'palatal', blade articulation (with lip-rounding) in some idiolects,
while others have 'apical', retroflex articulation (cf. e.g. Martens & Mar-
tens 1965:117).[18a] Both articulations, however, are distinct from the pure
palatal articulation of [ç]. Even without such a palatal/nonpalatal contrast,
shibilants can vary between 'palatal' and retroflex articulation; cf. Heffner
1964:156 for English.

4.3.5: As for "sporadic" retroflexion, there is ample evidence to show
that it can be accounted for in purely internal Indo-Aryan terms; cf. the
discussion and literature in Hock & Pandharipande To Appear:§2.2.[19]

4.3.6: Moreover, it is by no means certain that retroflexion is an
"un-Indo-European" phenomenon. Rather, it can be shown that retroflexion is
not only a wide-spread, but also a natural, phonetically well-motivated phe-
nomenon, found, at least dialectally, in the majority of the subbranches of
Indo-European.

Already Bühler (1864) had referred to dialectal English retroflexion, of
the type found in card [ka:ɖ] (cf. also, more recently, Wàkelin 1972:99).
Konow (1903:455) compared the similar retroflexion of dentals after (lost) r
found in Norwegian and Swedish dialects. As Steblin-Kamenskij (1965) showed,
in the more archaic area of this dialect group we find a triple contrast, be-
tween retroflex (from ḷ + dental), alveolar (from r + dental), and unmodified
dental. Similar developments of r + dental to retroflex are found in Faroese
(Lockwood 1955:20-1), in Icelandic ('dental' vs. 'alveolar', an incipient
contrast; cf. Kress 1937:86, fn. 1, and 125-6), in Irish and Scots Gaelic di-
alects (Borgstrøm 1940:169-72, 1941:44-5, 101-2, Oftedal 1956:126-7, Wagner
1958:maps 128, 200, 255), and in Italian dialects (Rohlfs 1949:302, 320,
433). Cf. also tr, dr > [ʈ,ɖ] in true, drew (vs. [č,ǰ] in chew, Jew) in many
American English dialects, as well as the change of r to a retroflex glide
in American English and in some British English dialects. Outside of Europe,
one may compare the fact that initial tr yielded š (presumably via ṣ) not on-
ly in some of the East Iranian dialects (cf. Morgenstierne 1958:159, Henning
1958:109), where South Asian areal influence might perhaps be assumed, but
also in the NW Central Persian dialect of Sangisari (cf. Morgenstierne 1958:
159, 173). Notice also the change of sr to š in Khwarezmian (Henning 1958:
115).

Another source for retroflexion is geminate ll (as well as, perhaps, nn
in Breton); cf. Rohlfs 1949:387-90 (Italian dialects), 1970:152-4 (idem, plus
Gascon, Asturian Spanish), Jackson 1967:passim (Breton dialects (?)). Con-
sidering that palatal [λ] and [ñ] are more regular outcomes of ll and nn (as
in Spanish), it is perhaps not unjustified to connect these instances of re-
troflexion with other cases where retroflexion seems to be related to pala-
tal(ization). In addition to the evidence for 'palatal' ś beside retroflex ṣ

cited in section 4.3.4 above, note also the change of palatal $\check{s}$ to retroflex $\underline{\check{s}}$ in SW Portuguese (Hammarström 1953:173-4) and the palatalization of [x] to $\underline{\check{s}}$ in Cypriot Greek (Newton 1972:22-3 with 26). Compare in this respect that also in Tocharian, retroflex segments result from palatalization, as in s > ṣ (vs. ḵ or ts > ś); cf. Krause & Thomas 1960:61, 63.

Quite different is the development found in certain Texan dialects of American English reported to me by Huntsman, where the dental fricatives [θ] and [δ] have become dental stops [t̪] and [d̪] , while alveolar t and d are realized as retroflex [ṭ] and [ḍ]. However, the principle is similar to that invoked for Germ. [ʒ] (or [ʒ^w]) vs. [ç], (pre-)Indo-Aryan [ṣ] vs. [ś], namely the principle of polarization (or maximalization of phonetic contrast). And it seems to be this principle which is responsible also for the fact that, after the loss of the conditioning alveolar r, the assimilated alveolar t (< [t̪]) becomes retroflex, thus becoming maximally distinct from unchanged dental [t̪].

4.3.7: As indicated earlier, Bhat (1973), referring only to the Norwegian/Swedish, English, Faroese, and Celtic phenomena, tried to account for these instances of retroflexion as due to Uralic substratum influence.

However, as indicated in 3.6 above, the question of Proto-Uralic retroflexes is still a matter of controversy (as Bhat himself realized). Note also that there seems to be no evidence for retroflexion in either Finnic or Lapp. And to my knowledge, there is no evidence even weakly suggesting a Uralic triple contrast between dental, retroflex, and alveolar, comparable to that developed in Norwegian/Swedish, the dialects most proximate to any of the attested Uralic languages. In addition, it is not at all certain that a Uralic substratum ever existed in any of the non-Scandinavian areas, especially in the more southern areas of Cyprus, Southern Italy, Gascony, and Spain.[20]

Moreover, Bhat's argument that retroflexion must somehow be special because it introduces a new feature can hardly be considered convincing. For in many languages, palatalization likewise introduces a new feature. Should therefore also this (very common) phenomenon be claimed to be either inherited or due to substratum influence? (Note that, as in the case of retroflexion, the actual palatal articulation of palatalized segments is no doubt the result of polarization: [k^y] : [k] > [č] : [k].)

Finally, Bhat's general conclusion that retroflexion is either inherited or substratum-induced must be viewed with some suspicion. For if carried to its logical conclusion, this claim seems to entail the assumption of a polygenesis of language, such that some languages, from the very beginning, had the feature of retroflexion, while others did not. Clearly, in light of our

present ignorance concerning the question of a single or multiple genesis of language, such an assumption would seem premature (as well as not open to falsification and thus scientifically dubious).

4.4: <u>api</u>: Contrary to Emeneau's assumption, at least four of the five uses of <u>api</u> can be motivated in terms of intra-Sanskrit parallels and in terms of Indo-Iranian antecedents and/or general Indo-European parallels. Even use (4), which has the least amount of such antecedents and parallels, may well be an internal development.

In the uses (1) 'also', (2) 'and', (3) concessive 'even', and (5) indefinitizing '-soever', <u>api</u> parallels (some of) the uses of the native, inherited IE particle <u>ca</u> "and". To these uses should be added at least one further parallel, namely the use of both <u>api</u> and <u>ca</u> as an emphasizing particle (henceforth: use (6)). Use (6) can be viewed as an intermediate step in the semantic development from (1)/(2) to (3). (For the meanings and uses of <u>ca</u> and <u>api</u>, cf. s.vv. in Böhtlingk & Roth 1855 and 1858.) Moreover, it can hardly be due to accident that in all of these uses, except apparently in use (5), <u>api</u> may occur in <u>combination</u> with <u>ca</u> (as <u>cāpi</u>, <u>api ca</u>, <u>ca ... api</u>); cf. Böhtlingk & Roth <u>1855:s.v.api</u>. It is thus quite possible that in these uses, <u>api</u> developed parallel to, and on the model of, the inherited particle <u>ca</u>.

Three of these uses, namely (1), (2), and (6), are found--attached to the same particle *<u>api</u>--also in another early Indo-Iranian language, Avestan (cf. Bartholomae 1904:s.v.<u>aipi</u>). Of these, at least (1) and/or (2) is found already in Gātha-Avestan; cf. Reichelt 1909:357 (with example on p. 358). Moreover, also Armenian offers a cognate, <u>ew</u> (likewise from PIE *<u>epi</u>), in the meaning 'and'; cf. Ernout & Meillet 1951:s.v.<u>et</u>, Schwyzer 1949:465. Finally, note that Greek offers the expression <u>epì dé</u> 'and in addition'; cf. Schwyzer 1949:465. It is thus likely that uses (1) and (2) go back not only to Indo-Iranian times, but perhaps to dialectal Proto-Indo-European times, extending at that time through those dialects which share also another innovation, namely the use of the augment <u>e-</u>.

Moreover, the development of the original locatival adverbial particle *<u>epi</u> into a conjunction-like particle has parallels in other Indo-European languages. Ernout & Meillet (1951:sv.<u>et</u>) compare this development with that of the original locatival adverbial particle *<u>eti</u>, where Indo-Iranian offers (*)<u>ati</u> 'beyond', Gothic retains this use of the particle in <u>id-weit</u> 'reproach', while Greek has <u>éti</u> 'in addition', Latin <u>et</u> "and", Gaulish <u>eti-c</u> 'and', Gothic <u>iþ</u> 'but; if'. To this might be added Old Irish <u>ocu(i)s</u> 'and' beside <u>ocus</u>, <u>acus</u> 'near' (Thurneysen 1961:549); Engl. <u>too</u> 'also' beside <u>to</u>; Slav. <u>da</u> 'so, and, but; that', related to E <u>to(o)</u> (with the semantic development 'in addition' → 'additionally, and' → subordinating conjunction; cf. Pokorny 1959:182).

More importantly, also the uses (3), (5), and (6), though not directly attested for PIE *<u>epi</u> outside of Sanskrit and Indo-Iranian, find ready parallels in the words for 'and'/'also' of other Indo-European languages, suggesting that uses (3), (5), and (6) are natural developments for particles meaning 'and' or 'also' (i.e. both for Skt. <u>ca</u> and for Skt. <u>api</u>). For uses (6)

and (3) compare Lat. et "and", etiam "also" in etsī, etiamsī 'even if'; Gk. kaì "and" in ei kaì, kaì ei 'even if', as well as kaì as emphasizer in expressions like kaì mála 'very much indeed'; Germ. auch "also" in wenn auch 'even if' and as an emphasizer in expressions like Auch er kam 'even he came'; Lith. iř "and" in kàd ir 'even if', cf. Latv. ir 'even' (emphasizing) (Senn 1966:300-4, Fränkel 1962:s.v.ař). For usage (5) compare the use of PIE *kʷe "and" as an indefinitizer in many of the Indo-European languages, not only Sanskrit, but also Iranian (Bartholomae 1904:s.v.ca), Lat. quisque 'who(so)-ever' (etc.), Goth. hwazuh (id.) (etc.). Compare further, with different particles, Hitt. kuiš(š)-a 'every, who(so)ever' (with -a "and"; Friedrich 1960:70); Lith. bèt 'but' (originally betai 'and (that)') in bet kàs 'who-(so)ever' (etc.) (Fränkel 1962:s.v.bèt, Senn 1966:202-3, 300-4); Germ. auch "also" in wer auch (immer) 'who(so)ever' (etc.).

Also the use of api as a question particle, a use which Emeneau could not connect with Dravidian, has Indo-European parallels. Compare first of all Gk. kaì, Lat. et at the beginning of questions to indicate surprise, objection, etc. This may perhaps have been the starting point for interrogative api. However, there is perhaps another possible development, parallel to that of Baltic ir/ar/er into OLith. er, Lith ař 'or'/question particle, beside Latv. ar(î) 'also', Lith. iř 'and, also', OPru. ir 'also', Latv. ir 'even' (cf. Fränkel 1962:s.v. ař). Here the semantic development may perhaps have been from coordinating 'and' to coordinating 'or' → 'whether (... or)' → question particle. (For Sanskrit, note that at least ca can have the meaning 'or'; Böhtlingk & Roth 1858:s.v.)

The use of Skt. api which has the least amount of solid intra-Sanskrit or Indo-European parallels is use (4), the 'completive' use after numerals and quantifiers. However, notice first of all that also the inherited particle ca "and" can occasionally be used in this function; cf. Speyer 1896:71 (with fn. 1). Note especially that the example cited by Speyer is from the Śatapatha-Brāhmaṇa and thus seems to predate the similar attestations of api. Compare further Gk. kaì polús 'much, many (altogether, indeed)', kaì pénte periploménous eniautoûs (Il.23:833) 'full five ...'; Lat. plerique 'many'; Germ. Alle, aber auch alle kamen 'all (everyone of them) came'. To be sure, in all of these cases we are probably merely dealing with occasional extended uses of emphasizing "also", and not, as in later Sanskrit api, with a standardized, 'totalizing' usage. However, there seems to be no reason against deriving this later 'totalizing' use from such occasional uses of an earlier emphasizing usage (cf. above all the use of ca in the Śatapatha-Brāhmaṇa), rather than following Emeneau in assuming that the 'totalizing' connotations of 'and/also' were the source.

It is thus at least possible that the late use of (4) may have developed internally, from other uses which have clear Indo-Iranian and/or Indo-European antecedents or precedents. Moreover, all the uses of the early language, including that as a question particle, have solid Indo-Iranian and/or Indo-European antecedents or precedents. At least for these uses, it is thus unnecessary and unmotivated to assume non-Indo-European origin.

4.5: Absolutives: As a morphosyntactic category, the Sanskrit absol-
utives are not at all without Indo-European parallels. Their (only post-Rig-
Vedic) use in 'chains' of absolutive clauses, followed by a single clause
with finite verb, to be sure, is specifically Sanskrit. However, within
Sanskrit, this use can be viewed as part of a general development from fin-
ite-verb to non-finite-verb and nominal syntax which seems to be a native,
literary development.

4.5.: As indicated in fn. 13 above, absolutives are found also in East
Iranian dialects.[21] More important, however, is their occurrence in other IE
languages where they cannot be considered part of the South Asian areal phe-
nomena. Thus, Armenian offers a construction of preposition plus infinitive
which is used absolutively; cf. Jensen 1959:184. Greek has deverbal adverbi-
als in -don, -da, -dēn 'zur Bezeichnung einer Nebenhandlung' (Schwyzer 1939:
626-7). Schwyzer (ibid.) compares their usage to that of the Latin type in
-tim and of the Skt. absolutives in -am, equating the -on of Gk. -don with
the Skt. -am, as well as with the Oscan-Umbrian infinitive marker -um. He
further compares (1949:410-1) Homeric expressions like aghkí-molon 'coming
near', whose -on is even more closely relatable to Skt. -am, Osc.-Umbr. -um.
In addition, Greek developed an 'absolutive infinitive'; cf. Schwyzer 1949:
378-9. Finally, Bader has argued that Greek also had absolutives in -tí, mor-
phologically related to verbal abstract nouns (1970).

As is well known, also Latin has an absolutive ('gerund'), viz. the ab-
lative of the verbal noun/adjective in -ndo-. Strunk has recently argued
that this formation in -ndo- is in origin 'ein nach Art altindogermanischer
Sprachen in Kasusformen auftretender "Infinitiv"' (1974:285). In the modern
Romance languages, this absolutive has taken over many of the functions of
the Latin (present) participle.

Also Tocharian offers an absolutive, made from a verbal noun in -or-
plus the ablative suffix; cf. Krause & Thomas 1960:185-6. Notice further
the English absolutive construction in -ing (as in His parents having re-
turned, he began to smile) which is built on a form which in origin is a
verbal noun (even if today it may also function as a participle). Also the
Celtic constructions of the verbal noun with prepositions, which have com-
pletely replaced the present participle (cf. e.g. Pedersen 1913:417), may be
compared.

While the absolutives discussed so far are all based on verbal nouns,
they do show affinities with the participle (especially in Romance, Celtic,
and English--an areal feature ?). It is therefore not surprising that in
some of the Indo-European languages, frozen case forms of the participle(s)
may function as absolutives. Cf. Entwistle & Morison 1949:207 and passim
(for Slavic), Senn 1966:181,473-5 (for Lithuanian), and Schwyzer 1949:410-1
(for Modern Greek).

There is thus ample evidence for absolutives in the other IE languages,
as well as for their close morphological relationship to verbal nouns and
adjectives (participles). While some of these can be explained as the re-
sult of later developments (cf. especially the Greek 'absolute infinitive'

and the participle-derived absolutives of Slavic, Baltic, and Modern Greek), many of the forms found in the earliest attestations (e.g. Gk. -(d)on, -tí, Lat. -ndo-) are from the synchronic point of view morphologically quite isolated and have all the appearances of being archaisms. Moreover, in the case of Gk. -ón, Skt: -am (also found in infinitives), Osc.-Umbr. -um, there is a phonological agreement in markers which makes reconstruction for the proto-language at least possible. Under these circumstances one may well wonder whether, as a morphosyntactic category, the absolutive many not date back to Proto-Indo-Eureopean times, perhaps as an ancient areal feature which, like SOV, linked the proto-language with the 'Indo-Altaic' sprach-bund. (For absolutives in Uralic, Altaic, Tibetan, cf. 3.6 above. Note that already Jacobi (1897:99,101) argued for IE origin of the Sanskrit absolutive in -am. However, his arguments in favor of that view are not entirely convincing.)

4.5.2: As has already been seen, the Sanskrit absolutive in -am is relatable to verbal nouns in *-om. Similarly, the absolutive in -tvā (and its variants -tvī and -tvāya) can ultimately be traced back to (instrumental) case forms of verbal nouns in -tu-. (Cf. e.g. Renou 1930:391, fn. 1, for both of these connections.) As for the suffix -yā (henceforth written -ya), Edgerton (155:64) plausibly argued that in light of the predominant long -ā found in Vedic, also this suffix must be considered instrumental in origin. The existence of Avestan infinitives in (instrumental) -yā (cf. Reichelt 1909:200) makes it likely that also this suffix is of verbal-noun origin.

As for the usage of these forms, -am occurs already in the Rig-Veda, although often difficult to distinguish from the infinitive in -am (cf. Renou 1930). Also the absolutive in -ya is found thirteen times in the earliest hymns, and ca. 100 times in the whole of the Rig-Veda (Renou 1940). Only the forms in -tvī and -tvā(ya) are, according to Renou (1940), limited to the late or middle portions of the Rig-Veda. In light of the preceding discussion, however, one may wonder whether we are here dealing with a significant or accidental gap in the attestations. Morphologically, -tvā (etc.) is, from the synchronic point of view, just as isolated as (-am,) -ya and the Greek and Latin absolutive forms. All of these forms have the appearance of inherited archaisms, rather than recent innovations.

On the other hand, the specific syntactic uses of the Sanskrit absolutives do show certain innovatory developments. As Renou (1940) observed, the typical value of the Rig-Vedic absolutives is one of accompanying circumstances. The antecedent (and subordinating) value of the absolutives in -tvā (etc.) and -ya is, in the Rig-Veda, rare and limited to late portions. This value appears above all in the descriptions and commentaries of the ritual found in the later Vedic prose, where this value helps to clearly establish the sequence of ritual actions (cf. also Renou 1956a:46). It is also at this point in the history of Sanskrit that the later pattern of 'chains' of absolutive clauses (followed by a single clause with finite verb) seems to emerge for the first time. In earlier texts, such 'chains' do not seem to be found.

Though the development of an antecedent value for an original 'concomitant' absolutive is an innovation, this development, and the primacy of the concomitant value is wholly Indo-European in nature. In most of the IE languages, the concomitant value seems to be the more basic or original one (or

even the only one found), while--as in Sanskrit--the antecedent value is sec-
ondary. Cf. concomitant Lat. habendō 'having' = Fr. ayant vs. French-only
ayant eu 'having had' (with ayant in the latter construction formally pre-
sent-tense, i.e. concomitant); similarly E going : having gone. Cf. also
Mod. Gk. klaiontas '(a-)crying' vs. dialectally restricted, analogical
lusontas 'having loosed' (cf. Schwyzer 1949:637).

As for the increasingly subordinating and 'chain' usage of the absolut-
ives in -tvā (etc.) and -ya, Renou observed (1956a:55-8) that it coincides
with, and is part and parcel of, the general development away from (finite)
verbal style and toward (non-finite) nominal style. As shown earlier, how-
ever, this development is not likely to have been brought about by (Dravid-
ian) substratum influence.

It is thus by no means certain that even this specific antecedent, sub-
ordinating, 'chain' aspect of the Sanskrit absolutive is to be attributed to
a (Dravidian) substratum. And there is no motivation (or evidence) whatsoe-
ever for attributing the early, Rig-Vedic (use of the) absolutive to such a
substratum.

4.6: Quotative iti: Quotative markers (rather than subordinating, in-
direct-discourse markers) may not be very common in the other IE languages.
However, some parallels can be found.

4.6.1: Markers of this sort seem to be of three kinds:

(a) 'THAT' (also used subordinatingly): Morphologically, this marker
may be derived from a deictive or relative pronoun stem (as in E that vs.
Fr. que). This marker is found e.g. in later post-Homeric Greek, Sanskrit,
Avestan, Romance, and Lithuanian (cf. Schwyzer 1949:638, fn.2). It is found
also in Armenian zi = prep. z + rel. pron. i (Jensen 1959:207-8, Meillet 1936:
139).

(b) 'THUS' (also subordinating): Derived from deictive or relative pro-
noun stems, this marker is found e.g. in Greek (cf. Hom. hōs éphato 'thus he
spoke'), Armenian ((e)t'e; cf. Jensen 1959:207-8, Meillet 1936:139), Iranian
(Av. uiti), as well as in Old Norse (svá, occasionally prefixed to direct
discourse). Note that Sanskrit iti morphologically and semantically belongs
to this well-established Indo-European category.

(c) A 'frozen' form of the verb SAY, as in Hitt. -wa(r)-, suffixed af-
ter the first constituent of a direct discourse (DD) and relatable to wer-
'speak'; cf. Friedrich 1960:149-50, Kronasser 1962:70. Note also Arm. bam
and other frozen forms of SAY; cf. Jensen 1959:188, 207. Compare addition-
ally Lat. inquam, inquit which may be infixed after the first or second con-
stituent of DD, but which do retain their syntactic reference (to first or
third singular speakers). Compare also the common use of 'pleonastic', often
standardized participial (or participle-like) forms of SAY which may accom-
pany DD and its governing SAY in many languages, including non-IE languages
(Kieckers 1915). Note that the Dravidian and Munda (Austro-Asiatic) quot-
atives belong to this category.

As for categories (a) and (b), the two may well be considered related under the assumption that at a deep level of syntax, DD is embedded in the following fashion. (Notice that the order of constituents is irrelevant at this point.)

$$SAY + Th + Wh + BE + DD$$

On the surface, this configuration may be realized by 'lexicalizing' Th and Wh either as manner adverbs (hence 'THUS') or as a neutral pronominal form (hence 'THAT'). In addition, by some kind of wh-is deletion, either Th + BE or Wh + BE may be zeroed out (hence e.g. deictive iti vs. rel. hós). (An alternative consists of deleting both Th and Wh, as well as BE, leaving no surface marker.)

4.6.2: There are thus ample morphological precedents, as well as a (putative) general syntactic motivation, for the quotative use of Skt. iti 'thus'. At the same time, note that the type of quotative used by Sanskrit differs strikingly from that used by Dravidian and Munda.

However, Kuiper (1967a:91-4) was not so much concerned with possible general antecedents and syntactic motivations for the use of iti, but with the specific, surface-syntactic behavior of the particle. As Kuiper pointed out, this behavior differs from that of its Iranian counterpart, Av. uiti, in two ways: (a) In Avestan, uiti + SAY never occurs after DD; it can occur only preceding DD or 'inserted' into it. On the other hand, as early as Rig-Vedic times, iti + SAY can occur after DD. (b) While Av. uiti must always be a surface clause-mate of SAY, iti need not be. According to Kuiper's count, there are already in the Rig-Veda, eleven instances of SAY + DD + iti and twelve instances of DD + iti without SAY, indicating that iti has begun to become an independent, postpositive quotative particle. And it is this use of iti which in Kuiper's view must be attributed to Dravidian influence.

4.6.3: Kuiper's hypothesis contains two claims, one being that the postpositive use of iti + SAY is non-Indo-European, the other, that the unaccompanied postpositive, 'quotative' use of iti is non-Indo-European.

4.6.4: The former of these two claims can be more easily shown to be based on insufficient or inconclusive evidence.

While it is certainly true that Iranian (i.e. Avestan) only has prepositive or inserted SAY + uiti, it seems equally true that Iranian has only prepositive or inserted unaccompanied SAY. It is, however, questionable whether

in either of these two respects, Iranian should be considered to preserve an archaic pattern which excludes postpositive SAY (+ _uiti_).

Kieckers (1915) gives ample evidence from many of the Indo-European languages both for prepositive and inserted SAY and for postpositive SAY. Moreover, the specific pattern (SAY) + DD + THUS + SAY is found in Homeric Greek, where it serves as a formula usually employed to indicate the end of a particular DD or of an exchange of DD's (such as a dialogue); cf. <u>... kratòn d'</u> <u>epì mūthon ételle + DD + hós éphat'</u> (Il.1:25-33) 'he laid upon him a stern command: "DD", thus he spoke ...' Considering that poetic formulae frequently preserve highly archaic structures, there is a good chance that this pattern is an archaism. Also elsewhere, there is evidence for considering postpositive SAY archaic. In many of the languages where it occurs, its use is much less free (i.e. much more formulaic) than the use of preposed or inserted SAY. Thus in the Old Icelandic Egilssaga, only <u>segja</u> occurs postpositively (and only after short DD), while segja, <u>mǽla</u>, <u>spyrja</u>, <u>svara</u>, <u>kveða</u> may occur preposed, and <u>segja</u>, <u>kveða</u> inserted. Similarly, in Plato's Apologia of Sokrates, DD + SAY is the least common pattern, occurring just once (in <u>Panú ge, ě d'hós</u> '"Certainly," he said').

In light of the earlier discussion showing that verb-final SOV is an archaic Indo-European construction, but that verb-medial XVY may be found as a result of the fact that nondirect objects and the like can follow the verb, it is possible to argue that 'verb-medial' inserted SAY (i.e. DD + SAY + DD ctd.) should not be considered an independent, third variant, but rather as a derived variant of 'verb-final' postposed SAY (i.e. DD + SAY). In both verb-medial patterns (i.e. in XVY and DD + SAY + DD), it can then be argued that the surface order is the result of some movement process (henceforth: 'partial extraposition') by which all or part of certain constituents can be moved to the right of the verb, as long as what precedes the verb after partial extraposition contains at least a part of the 'object constituent' (= direct object or DD). That this analysis may be on the right track is shown by the fact that, like actual verb-final DD + SAY, verb-medial DD + SAY + DD tends to have an archaic appearance. Thus, in Old Icelandic inserted SAY permits of only two verbs (<u>segja</u> and <u>kveða</u>), while preposed SAY is not limited in this fashion. Similarly, in the Platonic text examined, only <u>ēn</u> and <u>phēmì</u> may occur in inserted position. Further, the use of inserted SAY (with or without <u>uiti</u>) is much less common in Avestan than that of preposed (<u>uiti</u> +) SAY. Finally, note that the 'frozen', archaic Hittite quotative -<u>wa(r)-</u>, as well as Lat. <u>inquam</u>, <u>inquit</u> are limited to medial position.

It is thus possible to argue that even Iranian preserves examples of a more 'underlyingly' (i.e. pre-partial extraposition) postposed (<u>uiti</u> +) SAY. Moreover, it is possible to argue that postpositive (THUS +) SAY is a feature of <u>Proto-Indo-European</u>. Considering that it survived (in limited, often specialized fashion) even in the more western languages, it should come as no surprise that it survived (somewhat more vigorously) also in the 'eastern' Sanskrit.

4.6.5: At the same time, however, there is ample evidence to show that, by (complete) extraposition, already PIE had acquired a preposed construction SAY (+ THUS) + DD. This is, especially in the 'western' languages, the type of construction which is most productive. However, also in the 'eastern' languages it is quite common. The reason for this is not difficult to find: Especially in the case of lengthy DD's, postpositive (THUS +) SAY would be considerably more awkward and taxing on the memory (especially that of the listener). (Note in this respect that otherwise overwhelmingly-SOV modern Indo-Aryan languages like Hindi, as well as literary (and colloquial) Persian, regularly have complete extraposition of ki (vel sim.) + DD.)

As a result of this complete extraposition, two major, competing patterns arose, one with preposed SAY, the other with postposed (or inserted) SAY. Such a situation often leads to specializations, and such a specialization is probably found in Homeric Greek, where postposed SAY, combined with hõs 'thus', has a resumptive, discourse- or dialogue-concluding function, while preposed SAY (without hõs) does not.

As it turns out, a similar pattern emerges for complete, 'normal' DD in Rig-Vedic Sanskrit. Of the verbal roots brū-, āh-, vac-, vad- (all meaning 'say, speak, etc.'), and prch- 'ask', 20 preposed occurrences are found without accompanying iti (vs. 5 or 6 with iti); on the other hand, 17 postposed occurrences are found with iti (vs. 3 without). (That is, the two patterns are more or less complementary.) In addition, there are two occurrences of 'inserted' SAY + iti and three without, as well as one instance of SAY + DD + iti + DD. (Here, the number of attestations is too small to suggest a definite pattern.) Finally, there are three (or four) examples of SAY + DD + iti.

It is possible to account for this situation by assuming that, as in Greek, THUS + SAY had a tendency to be specialized to postpositive position, while simple SAY tended to be preposed. However, unlike in Greek, this tendency was not carried to its logical conclusion, but--as often happens in 'analogical' generalizations--was counteracted by a tendency toward compromise, a 'blending' of the two competing patterns, resulting in preposed SAY, followed by DD, followed by postposed iti. (Similarly, the common Homeric formula SAY + DD + hõs + SAY may be looked upon as a kind of compromise(-cum specialization).) This explanation of the Rig-Vedic facts would seem to better account for the pattern found in the Rig-Veda than Kuiper's hypothesis (which took into consideration only the occurrences of (SAY +) iti): Simple SAY is heavily favored in preposed position, iti + SAY in postposed position, while SAY + DD + iti still occurs only quite rarely.

This latter, compromise type of construction, however, may then have provided the nucleus for the reinterpretation of iti as a postposed quotative marker (no matter what the position of SAY). Whether this happened already in Rig-Vedic is difficult to decide merely on the basis of the evidence provided by the extant texts. The prevalence of the other two patterns, however, leads one to suspect that at this point the type SAY + DD + iti was still nothing but a compromise, rather than being felt as exemplifying an 'independent' quotative marker. At any rate, the fact that there are, according to my count, six instances of DD + iti without an overt occurrence of SAY is not necessarily evidence for iti as a quotative marker:[22] In three of these oc-

currences, SAY is clearly 'recoverable' or 'implied' (cf. 1:109:3 with SAY implied by nādh- 'flehen'; 10:115:9 with vac- 'say' in the preceding clause; 10:119:1 with man- 'think' in the preceding clause). And in three further instances (9:6:2, 10:71:1, 10:130:1) we are dealing with the common type of DD with omitted SAY exemplified by Germ. Und da kam er angerannt: 'Mutti, Mutti, ich habe gewonnen!' 'And he came running (with the words) "Mummie, Mummie, I won."' (Cf. Kieckers 1916:41-51 for similar examples of deleted SAY in Indo-European and other languages.) We may thus assume that in these cases, deletion operated on postposed SAY, leaving the accompanying iti stranded. (Cf. similarly, in indirect discourse, expressions like Germ. Dass er das gesagt hat! '(I can hardly believe) that he said that', with omitted 'believe' (vel sim.) and with the accompanying particle dass left stranded.) That Rig-Vedic had such a process of SAY-deletion is shown by the fact that there are also instances of DD without SAY and without iti (e.g. 7:99:3, 10:18:9, 10:23:2, 10:34:3), where SAY-deletion apparently applied to preposed (simple) SAY.[23]

4.6.6: While this alternative explanation of the Rig-Vedic occurrences of (SAY +) DD + iti--and of the, perhaps only post-Rig-Vedic, reinterpretation of the 'stranded' iti as a quotative marker--may not be as well supported by outside IE parallels as the postpositive occurrence of iti + SAY, it does not seem to be an unreasonable explanation. Moreover, there evidently is outside IE evidence for reinterpretations resulting in quotative markers, albeit not involving Th or Wh, but rather fossilized forms of SAY (cf. Hittite and Armenian). It is therefore by no means certain that the Sanskrit reinterpretation of iti as a quotative marker can be explained only by considering it substratum-induced.

In light of this possible alternative explanation, it must therefore be concluded that even for the second claim of Kuiper's hypothesis, (Dravidian) substratum influence cannot be considered established beyond a reasonable doubt.

4.7: Caste terminology and usage: While there can be no doubt that the elaborate caste system of later Indo-Aryan is an Indian innovation, it must be borne in mind that (a) as Emeneau himself admitted, the caste system and the corresponding special terminology and usage is not pan- or Proto-Dravidian, and that (b) while as Emeneau claims, there may have been pre-caste tribal Dravidian antecedents for these features, there are likewise pre-Indian Indo-European antecedents. The social stratification of Indo-European society into three layers--priests, warriors, and commoners--may have considerably differed in detail from the later Indo-Aryan caste system; but

after Dumézil's (1958) meticulous and extensive documentation, its existence
in Proto-Indo-European times, as well as the association of special colors
with these three layers, to the point that 'color' (Skt. varṇa-, Av. pištra-)
could in Indo-Iranian come to mean 'social class', can no longer be doubted.

Moreover, the practice of referring to married women by means of 'femin-
inized' forms of their husbands' name or profession likewise has Indo-Euro-
pean antecedents and/or parallels. Cf. the archaic sets Lat. rēx : rēgīna,
OIr. rí : rígain, Skt. rāṭ (or rājan-) : rājñī;   Gk. pósis : pótnia, Skt.
pati- : patnī-, Lith. viešpat(i)s : OLith. wieschpatni.   In both of these
sets, the feminine term may refer not just to a 'female ruler', but also--
and in many societies perhaps more often--to the wife of the ruler. Cf. also
Hom. Gk. basíleia, usually 'wife of a basileús "king"' (but ánassa, fem. of
ánax 'king', means 'royal woman'). Compare also Germ. Bauer 'farmer' :
Bäuerin, Bäcker 'baker' : Bäckerin (etc.), Doktor : Frau Doktor (etc.), Up.
Frank. Kuno (proper name) : Kunera, where in traditional society, the femin-
ine term usually refers to the wife of the person referred to by the mascul-
ine term. Finally, compare in the Rig-Veda agni- : agnāyī- 'Agni's wife',
varuṇa- : varuṇānī- 'V's wife', etc., as well as nṛ- 'man' : nārī- 'wife' =
Av. nar- 'man, warrior' : nāirī- 'woman, wife, married woman' (cf. nāiri-
vant- 'having a wife'; the derivational vṛddhi of the feminine term clearly
shows that this form is a feminine of appurtenance, defining the wife as be-
longing to the man).

In light of these Indo-European antecedents and/or parallels and of the
uncertain evidence for pan- or Proto-Dravidian origin of the feature in ques-
tion, it would seem well-advised to be cautious about attributing this fea-
ture to Dravidian influence.

5: CONCLUSIONS

5.1: The discussion in the two preceding sections has, I hope, shown
that the hypothesis of Dravidian substratum influence on Sanskrit, especially
on early Rig-Vedic, cannot be considered established beyond a reasonable
doubt.   The features of nominal style, participles as finite verbs, and dis-
tributive use of āmreḍita-compounds apparently are not considered probative
any longer even by the advocates of the Dravidian substratum hypothesis--
justifiably so, as the discussion in 4.1 has shown.

For the features of retroflexion, SOV, absolutives, and quotative, non-
Dravidian alternative outside sources are (more or less) possible, with the
latter three features so wide-spread in languages like Uralic (SOV, absolu-
tives), Altaic (id.), Tibeto-Burman (absolutives, quotative), and Austro-
Asiatic including Munda (quotative) that it would be extremely arbitrary to

single out Dravidian as the only possible source; cf. 3.6. Moreover, there is now some reason to doubt the claim that retroflexion is inherited in Dravidian and an innovation only in Indo-Aryan: The possibility (approaching probability) of Dravidian relationship to Uralic and Elamite suggests that retroflexion is an innovation of (Proto-)Dravidian; cf. 3.7.

On the other hand, there are solid Indo-European antecedents and/or parallels for the features of SOV (4.2), retroflexion (4.3), as well as for the (Rig-)Vedic uses of api (4.4) and of the absolutives (4.5), and probably also of the Rig-Vedic use (of not yet quotative) iti (4.6). (SOV and the absolutives may, however, be the result of areal influence on Proto-Indo-European; cf. 4.2.4 and 4.5.1.) There is thus no conclusive evidence for Dravidian influence on Rig-Vedic.

The case for post-(Rig-)Vedic Dravidian influence on Sanskrit is a little better. The special post-(Rig-)Vedic uses of api (2.2.5) and the absolutives (4.5.2), as well as the probably post-Rig-Vedic (4.6.5) development of iti into a genuine quotative marker might be considered evidence for Dravidian influence at that time, especially considering that all the uses of api are reconstructable for PDr. *-um (2.2.5) and that the features of absolutives and quotative are found in Uralic and Elamite respectively (3.6), making it possible that these features are even pre-Dravidian in origin. One might even be tempted to add the equally late feature of the special caste terminology and usage which however is not pan- or Proto-Dravidian (2.2.6, 4.7). However, even for these features it is possible to argue for native Indo-Aryan developments with at least some Indo-European antecedents and/or parallels (4.4; 4.6.6; 4.7) or, in the case of the absolutives, as part of a general, literary development away from verbal syntax and toward nominal syntax (4.5.2).

Perhaps the most important argument against a Dravidian origin of the features in question, especially in Rig-Vedic times, is the fact that there is not only no conclusive, independent evidence for early Dravidian/Indo-Aryan contact, but that on the contrary there is independent evidence for early contact between Indo-Aryan and another non-IE language (which is generally considered not to be a likely source for these features), namely Munda; cf. 3.1-3. This casts considerable doubt on the common assumption of early Dravidian/Indo-Aryan contact and the convergence it is generally as-

sumed to have entailed. (Even for later Sanskrit, contact--and thus possible convergence--with Dravidian may perhaps have been regionally limited; cf. 2.6 and 3.1.)

Finally, it is by no means certain whether Proto-Dravidian did in fact, as is generally assumed (at least implicitly), antedate the arrival of the Indo-Aryans: cf. 3.4.

5.2: While it thus unlikely that there was early convergence of Indo-Aryan with Dravidian, this should not be understood to imply that there is proof against such a convergence. I am not sure whether and how such a proof could be established--a common problem in arguing against substratum hypotheses. At the same time, however, the conclusions reached in this paper should encourage a search for alternative explanations.

Thus, the fact that many of the features investigated are found not only in the relatively 'central' Sanskrit (or Indo-Aryan), as well as in the Munda and Dravidian languages to the south, but also in some of the Tibeto-Burman languages to the north and east, in Burushaski to the north, and in the Eastern Iranian dialects to the northwest, combined with the sociolinguistically preeminent position traditionally enjoyed by Sanskrit in this area, may suggest that perhaps it was the geographically and sociolinguistically central Sanskrit which furnished the starting point, and the impetus, for the spread of many, if not most, of these features. There is, in fact, growing evidence for Sanskrit influence on the vocabulary of Dravidian; cf. Emeneau & Burrow 1962, Burrow & Emeneau 1968:167. However, considerably more work will have to be done in this area before even half-way acceptable conclusions can be reached.

5.3: In the meantime, there is at least some reason to be cautious also in respect to this alternative view. For as noted in 3.8 above, the distributional patterns of Dravidian and (Old) Indo-Aryan retroflexion are quite different, and this discrepancy does not seem to be well accounted for by a theory postulating convergence--in either direction. It may therefore well be that retroflexion is native both to Dravidian and to Indo-Aryan; and this should perhaps no longer come as a surprise, considering how common and phonetically well-motivated this feature is; cf. 4.3.6.

It is interesting to note that the modern geographical distribution of retroflex segments in the South Asian sprachbund may well be interpreted to support this view: As map 3 (p. 555) of Ramanujan & Masica 1969 shows, the extreme northwest (including Pashto, Burushaski, and Shina) is the only area with distinctively retroflex sibilants (and, except for Pashto, with distinctively retroflex assibilated stops). At the same time, the extreme south (including Tamil and Malayalam) is the only area with retroflex continuant r. In addition, the 'richest' retroflex systems are located, again, in the extreme northwest and in the extreme south. Considering that retroflex s was the starting point for (Old) Indo-Aryan retroflexion and that the extreme northwest was the most original South-Asian home of (Rig-Vedic) Sans-

krit, while r̥ is the most distinctively 'Dravidian' retroflex segment and the
south may have been the most original home of the Dravidians in South Asia
(cf. 3.2), it might be argued that these extreme northwestern and southern
homelands have most faithfully preserved the original, native patterns of re-
troflexion, while the vast intermediate territory constitutes the main area
of convergence, where the 'peculiarities' of the two different systems were
'leveled out' (but where the two general patterns spread, presumably in large
measure at the expense of the very different pattern of Munda).

It would be interesting to see to what degree this pattern agrees with
the distributional patterns of the other features investigated in this paper,
as well as with (linguistic and nonlinguistic) historical and prehistoric
evidence.

5.4: In the absence of such further investigations, however, it seems
preferable to admit that the evidence now available is insufficient either
to establish beyond a reasonable doubt that the South Asian convergence began
as early as (Rig-Vedic) Sanskrit times or to decide whether the convergence
began unidirectionally (with only Indo-Aryan influenced by Dravidian) or if,
from its inception, it followed the mutual-influence pattern generally ob-
served in present-day India.

FOOTNOTES

[1]Research on this paper has in part been supported by 1974/75 and 1975/
76 grants from the University of Illinois Research Board and by a 1974/75
grant from the American Philosophical Society.-- Earlier versions of this
paper were read at the 1974 Meeting of the Mid-America Linguistics Confer-
ence (Lincoln, Nebraska, Oct. 19, 1974) and before the South Asian Language
Analysis Group, Department of Linguistics, University of Illinois (Nov. 11,
1974). I have benefited from helpful comments and criticisms by Jürgen Döl-
lein, Geoffrey Huntsman, Braj B. Kachru, Alan S. Kaye, S. N. Sridhar, Syed
M. Syeed, Sarah G. Thomason, and Dieter Wanner. I am grateful also to Paul
Friedrich for making available to me a prepublication copy of his paper
'The devil's case: PIE as SVO.' Needless to say, my indebtedness to these
friends and colleagues should not be taken to imply that they would all agree
with every one of the claims made in this paper.

[2]However, on p. 175 he cited Middle Indo-Aryan as a possible source for
some of the unexpected Sanskrit retroflex consonants.

[3]Assuming that Bhili (or Nahali), found in relic areas of the northwest
part of the Central Mountains, which unlike Dravidian or Munda has initial
retroflex stops, is a language isolate, Wüst (1957) tried to account for
(post-RV) words with initial retroflex stops, such as ṭhakkura-, as borrow-
ings from Bhili. However, his etymologies (cf. Skt. ṭhakkura- 'divinity,
numen' = differently nativized śakvara- 'bull') are far from convincing.
Moreover, the exact linguistic affiliation or non-affiliation of Nahali is
still a matter of controversy; cf. Zide 1969:427-8, Kuiper 1972:292-3.

[4]Konow (1903:456) also considered the generally observed increase of l-forms (at the expense of forms with r) to be induced by the Dravidian substratum. However, in this view he seems to have remained alone. In addition, this phenomenon seems to be more plausibly attributed to dialect mixture in Indo-Aryan; cf. Hock & Pandharipande To Appear:§3.1.2.

[5]Emeneau (1954:291-2), to be sure, questioned the validity of many proposed etymologies, since the evidence for Munda origin often did not come directly from Munda, but from (other) Austro-Asiatic languages. In Emeneau's view, the relationship between Munda and Austro-Asiatic had not been established. However, Pinnow's work (cf. e.g. 1959 and 1960) should have laid to rest Emeneau's reservation.

[6]Recent discussions, however, seem to follow Kuiper 1967a in considering all retroflexion due to convergence.

[7]Erlier publications frequently add uloká- 'world' (RV passim). However, since Leumann's convincing demonstration that this word must be the dissimilated outcome of uru- or ulu-loká- (containing uru- 'broad, wide'), it must be omitted from the list of possible Dravidian borrowings.

[8]On this matter, cf. Hock & Pandharipande To Appear:§3.1.2-3.

[9]Note that, directly or indirectly, the nasal-prefix form of the Munda word for 'plough' found its way also into some Dravidian languages; cf. Tam. ña-ñ-cil, Kann. nē-gal.

[9a]As for late Vedic and Classical ghoṭa(-ka)- 'horse', first appearing in the southern Āpastamba Śrautasūtra--an alleged Dravidianism which remained in Modern Indo-Aryan (cf. Hindi ghoṛā)--, Bloch (1929:736) wondered how a "Dravidian" borrowing can have a voiced aspirate. Moreover, he pointed out, 'Horse-breeding is certainly not a peculiarity of the Deccan.' On the other hand, there is a word ḥtr 'team, horse' in Egyptian, where the art of horse breeding was known. Also Turkish and Modern Greek have possible cognates. There is thus ample reason to doubt a Dravidian, or even an Indian, origin for this word.

[10]Emeneau (ibid.70, fn. 10), while preferring to consider Brahui an isolated relic area, does admit the possibilty that further work may show the language to have migrated from a more southerly position.

[11]Pizzagalli's (1929:165-7) argument for Munda origin of this feature, though based on a correct interpretation of the linguistic-geographical evidence, can therefore not be accepted.

[12]Cf. for instance the mistakes made by many English speakers learning a South Asian language.-- The phenomenon under discussion should not be confused with the difficulties which arise in the nativization of, say, English words into Hindi, where the usual substitution for the English alveolar stops is that of Hindi retroflex stops, but where as a result of the incommensurate nature of the two obstruent systems, there may be an occasional vacillation in favor of Hindi dentals (cf. moṭar 'motor car' etc. vs. botal 'bottle'): Unlike English, which has alveolars (i.e. neither pure dentals nor retroflexes), Indo-Aryan had dental (or dantamūla- 'tooth-root'-articulated) stops.

[13]For examples of retroflexion in East Iranian dialects, cf. Konow 1932: 8-11,34, and passim, 1949:14,18,25; Morgenstierne 1958:159. For absolutives, cf. Konow 1932:59, Bailey 1958:147,149.

[14]McAlpin (1975:114) is sceptical about the cogency of Tyler's claims. However, referring to later literature which is not available to me, he states that there now is, also to his mind, evidence for the Uralo-Dravidian connection.

[15]Krishnamurti, to be sure, has proposed to consider what in Dravidian linguistics normally is written r̤ to be an original ẓ. However, as he him-self admitted (1969:318, fn.18), there is no strong empirical evidence in favor of this proposal.

[16]Another difficulty with the usual explanation of the Sanskrit retro-flex/dental contrast is that Dravidian has a retroflex/alveolar/dental con-trast. Why, one may wonder, did Sanskrit in that case not adopt the entire triple contrast, rather than limit itself to the retroflex/dental subset?

[18]It should be noted that Friedrich (In Press) does make occasional ref-erences to PIE VSO as the 'angel's case'.

[18a]I happen to be a native speaker of a clearly retroflex idiolect.

[19]In addition, note Thieme 1942:192-3 and Wackernagel 1942:161 for ex-planations of some of the instances of "spontaneous" retroflexion.

[20]This is not to say that the 'Romance' retroflexion has not been attrib-uted to substratum influence, in the belief that it is "un-Indo-European". However, already Millardet (1933) recognized that no known language could be identified as identical or related to that substratum. His conclusion that nevertheless there was an (unknown) substratum, s 'substratum X', is inter-esting only to the extent that it shows the extremes to which substratist "explanations" can go. Contrast this with Rohlfs's (1970) sober conclusion that there is no evidence, or need, for a substratum.

[21]Also Avestan has been believed to have absolutives (in -am, -tīm); cf. e.g. Reichelt 1909:335-7. However, Benveniste (1930) has expressed consider-able doubts concerning the absolutive interpretation of these forms.

[22]Two further apparent instances of DD + iti (without SAY), namely RV 1:191:1 and 5:52:11 are to my mind too uncertain or unusual to be included as evidence. In 1:191:1, iti follows after each of two apparently conjoined words (dvāv íti plúṣī íti). A quotative iti should follow the entire DD. Are we here dealing with deictic iti, used as an emphasizer (i.e. 'two (sic) pluṣis (sic)') ? As for 5:52:11, Geldner (1951:ad loc.) states that 'Man-ches ist dunkel' in this verse.

[23]There are finally, for the verbs examined, also three instances of 'mixed' syntax, with Acc. + DD (+ iti) + SAY (etc.) instead of Acc. + Acc. (+ iti) + SAY (as if, in English, one were to say They call him 'Thief' in-stead of They call him a thief). In these mixed constructions, we find one occurrence each of Acc. + "DD" + iti + SAY (8:92:2), Acc. + SAY + "DD" + iti (9:114:1), and "DD" + iti + SAY + Acc. (5:61:8; passive, hence Acc. → Nom.). In addition, there are four other 'mixed' constructions in which Acc. + SAY is followed by a more genuine DD (as if E They say him 'He is a thief'),

namely Acc. + SAY + DD (4:38:9c,d), Acc. + SAY + "DD" + DD + _iti_ (1:164:15a, b), Acc. + SAY + DD + _iti_ (2:12:5a,b (2x)). These 'mixed' types are too sparsely attested to suggest a definite pattern and explanation. However, it may be argued that the occurrence of _iti_ with all three instances of "DD" results from the fact that the non-occurrence of _iti_ would lead to opaque surface constructions of the type Acc. + Nom. + SAY which would be apparent counterexamples to the rule(s) producing normal Acc. + Acc. + SAY.

REFERENCES

Alavi, Bozorg, and Manfred Lorenz. 1967. Lehrbuch der persischen Sprache. Leipzig: VEB Enzyklopädie.

Allen, W. Sidney. 1964. Transitivity and possession. Lg.40.337-43.

Andronov, M. 1963. Lexicostatistic analysis of the chronology of disintegration of Proto-Dravidian. IIJ 7.170-86.

Bader, Françoise. 1970. Neutres grecs en -_ti_: absolutifs et privatifs verbaux. BSL 65.85-136.

Bailey, H. W. 1957. _Dvārā matīnām_. BSOAS 20.41-59.

-----. 1958. Languages of the Saka. Spuler 1958:131-54.

-----. 1959. Iranian _Arya_ and _Daha_. Transactions of the Philological Society 1959:71-115.

-----. 1961. Arya III. BSOAS 24.470-83.

-----. 1963. Arya IV. BSOAS 26.69-91.

Bartholomae, Christian. 1904. Altiranisches Wörterbuch. Strassburg: Trübner.

Benveniste, Émile. 1930. Les absolutifs avestiques. MSL 23.393-402.

Bergsland, Knut, and Hans Vogt. 1962. On the validity of glottochronology. Current Anthropology 3.115-53.

Berneker, E. K. 1900. Die Wortfolge in den slavischen Sprachen. Berlin: Behr. [Non vidi.]

Bhat, D. N. S. 1973. Retroflexion: an areal feature. Working Papers on Language Universals 13.27-67. (Stanford University.)

Bloch, Jules. 1906(-08). La phrase nominale en sanskrit. MSL 14.27-96.

-----. 1925. Sanskrit et dravidien. BSL 25.1-21.

-----. 1929. Some problems of Indo-Aryan philology. BSOS 5.719-56.

-----. 1934. L'indo-aryen du véda aux temps modernes. Paris: Adrien-Maisonneuve. [Engl. transl. by A. Master, with retention of 1934 pagination in the margin, Ibid., 1965.]

-----. 1946. Structure grammaticale des langues dravidiennes. [Engl. transl. by R. G. Harshé, Poona: Deccan College, 1954. My page references are to the English translation.]

Böhtlingk, Otto, and Rudolph Roth. 1855, 1858. Sanskrit-Wörterbuch, 1 & 2. St. Petersburg: Akademie der Wissenschaften.

Borgstrøm, Carl Hj. 1940, 1941. A linguistic survey of the Gaelic dialects of Scotland, 1 & 2. (NTS Supplement 1 & 2.)

Braine, Jean Critchfield. 1970. Nicobarese grammar (Car dialect). University of California at Berkeley Ph.D. dissertation.

Bühler, Georg. 1864. On the origin of the Sanskrit linguals [vel sim.] Madras Literary Journal. [Non vidi; references apud Pizzagalli 1929: 157,159-60, Wackernagel 1896:165.]

Burrow, Thomas. 1955. The Sanskrit language. London: Faber & Faber.

-----. 1959 (a). On the phonological history of Sanskrit kṣā́m- 'earth', ŕkṣa- 'bear', and likṣā́- 'nit'. JAOS 79.85-90.

-----. 1959 (b). Sanskrit kṣi- : Greek phthínō. JAOS 79.255-62.

-----. 1971. Spontaneous cerebrals in Sanskrit. BSOAS 34.538-59.

-----. 1975. The early Āryans. A cultural history of India, ed. by A. L. Basham, 20-37. Oxford: Clarendon Press.

Caland, W. 1906. Eene onbekende recensie van den Sāmaveda. Verslagen en Mededeelingen der Kon. Akademie van Wetenschappen, Afd. Letterkunde, Vierde Reeks, 7.300-4.

-----. 1926. Over het Vaikhānasasūtra. Mededeelingen der Kon. Akademie van Wetenschappen, Afd. Letterkunde, 61A.278-86.

Caldwell, Robert. 1856. A comparative grammar of the Dravidian or South Indian family of languages. First edition. London. [Non vidi.]

Collinder, Björn. 1957. Survey of Uralic languages. Stockholm: Almqvist & Wiksell.

-----. 1960. Comparative grammar of the Uralic languages. Stockholm: Almqvist & Wiksell.

-----. 1965. An introduction to the Uralic languages. Berkeley and Los Angeles: University of California Press.

Daly, D. M. 1973. Additional evidence that PIE was 'verb-final'. The Journal of Indo-European Studies 1.518-9.

Davane, G. V. 1956. Nominal composition in Middle Indo-Aryan. Poona: Deccan College.

Dressler, Wolfgang. 1968. Ved. divé-dive und die idg. Iterativkomposita. Studien zur Sprachwissenschaft und Kulturkunde: Gedenkschrift für Wilhelm Brandenstein, 39-47. Innsbruck: AMOE.

Dumézil, Georges. 1958. L'idéologie tripartite des Indo-Européens. Bruxelles: Latomus.

Dyen, Isidore. 1956. Language distribution and migration theory. Lg.32. 611-26.

Edgerton, Franklin. 1955. Review of A. Debrunner: Altindische Grammatik,

2:2. (Göttingen: Vandenhoeck & Ruprecht, 1954.) JAOS 75.55-68.

Ehrman, Madeline E., and Kem Sos. 1972. Contemporary Cambodian. Washington: Foreign Service Institute, Department of State.

Emeneau, Murray B. 1954. Linguistic prehistory of India. Proceedings of the American Philosophial Society 98.282-92.

-----. 1956. India as a linguistic area. Lg.32.3-16.

-----. 1962 (a). Bilingualism and structural borrowing. Proceedings of the American Philosophical Society 106.433-42.

-----. 1962 (b). Brahui and Dravidian comparative grammar. Berkeley and Los Angeles: University of California Press.

-----. 1965. India and historical grammar. Annamalainagar: Annamalai University.

-----. 1974. The Indian linguistic area revisited. IJDL 3.92-134.

-----, and Thomas Burrow. 1962. Dravidian borrowings from Indo-Aryan. Berkeley and Los Angeles: University of California Press.

Entwistle, W. J., and W. A. Morison. 1949. Russian and the Slavonic languages. London: Faber & Faber.

Ernout, A., and A. Meillet. 1951. Dictionnaire étymologique de la langue latine. Paris: Klincksieck.

Fischer, P. 1923. Zur Stellung des Verbums im Griechischen. Glotta 13.1-11, 189-205.

Fränkel, E. 1962. Litauisches etymologisches Wörterbuch, 1. Heidelberg: Winter.

Friedrich, Johannes. 1960. Hethitisches Elementarbuch, 1. 2nd rev. ed. Heidelberg: Winter.

Friedrich, Paul. 1973. PIE as SVO. 48th Annual Meeting of the Linguistic Society of America.

-----. In Press. The devil's case: PIE as SVO. Linguistic studies offered to Joseph Greenberg on the occasion of his 60th birthday.

Geiger, W. 1893. Die Passivconstruction des Präteritums transitiver Verba im Iranischen. Festgruss an Rudolf von Roth, 1-5. Stuttgart: Kohlhammer.

Geldner, Karl Friedrich. 1951. Der Rig-Veda. (Harvard Oriental Series, 33-35.) Cambridge, MA: Harvard University Press.

Goldstein, Melvin C., and Tsering Dorje Kashi. 1973. Modern literary Tibetan. (Occasional Papers of the Wolfenden Society on Tibeto-Burman Linguistics.)

Gonda, Jan. 1952. Remarques sur la place du verbe dans la phrase active et moyenne en langue sanscrite. Utrecht. [Non vidi.]

-----. 1959. Four studies in the language of the Veda. The Hague: Mouton.

Greenberg, Joseph H. 1963. Some universals of grammar with particular reference to the order of meaningful elements. Universals of language, ed. by J. H. Greenberg, 73-113. (2nd ed. 1966) Cambridge: MIT Press.

Grierson, George A. 1919. Linguistic survey of India, 8:2. Calcutta: Government of India.

Gumperz, John J., and Robert Wilson. 1971. Convergence and creolization: a case from the Indo-Aryan/Dravidian border in India. Pidginization and creolization of languages, ed. by Dell Hymes, 151-67. London: Cambridge University Press.

Hammarström, Göran. 1953. Étude de phonétique auditive sur les parlers de l'Algarve. Uppsala and Stockholm: Almqvist & Wiksell.

Heffner, R-M. S. 1964. General phonetics. Madison: The University of Wisconsin Press.

Henning, W. B. 1958. Mitteliranisch. Spuler 1958:20-138.

Hock, Hans Henrich. 1974. Historical change and synchronic structure: the case of the Sanskrit root nouns. Towards tomorrow's linguistics, ed. by R. W. Shuy and C-J. N. Bailey, 329-42. Washington: Georgetown University Press. [Reprinted in IJDL 3.321-35 (1974).]

-----. 1975. Reversal of sound change and regular dissimilation. Summer Meeting of the Linguistic Society of America, Tampa, Florida.

-----. In Press. Review of R. Anttila: An introduction to historical and comparative linguistics. (New York: MacMillan, 1972.) Lg.52:1.

-----, and R. Pandharipande. To Appear. The sociolinguistic position of Sanskrit in pre-Muslim South Asia.

Jackson, Kenneth. 1967. A historical phonology of Breton. Dublin: Institute of Advanced Studies.

Jacobi, Hermann. 1897. Compositum und Nebensatz. Bonn: Cohen.

-----. 1903. Über den nominalen Stil des wissenschaftlichen Sanskrit. IF 14.236-51.

Jensen, Hans. 1959. Altarmenische Grammatik. Heidelberg: Winter.

Kieckers, Ernst. 1911. Die Stellung des Verbs im Griechischen und in den verwandten Sprachen, 1. Strassburg: Trübner.

-----. 1915, 1916. Zur oratio recta in den indogermanischen Sprachen, 1 & 2. IF 35.1-93 & 36.1-70.

Konow, Sten. 1903. Notes on Dravidian philology. Indian Antiquary 32.449-58.

-----. 1906. Linguistic survey of India, 4. (General editor: George A. Grierson.) Calcutta: Government of India.

-----. 1932. Saka studies. Oslo: Etnografiske Museum.

-----. 1949. Primer of Khotanese Saka. NTS 15.5-136.

Krause, Wolfgang, and Werner Thomas. 1960. Tocharisches Elementarbuch, 1. Heidelberg: Winter.

Kress, Bruno. 1937. Die Laute des modernen Isländischen. Gräfenhainichen: Schulze.

Krishnamurti, Bhadriraju. 1969. Comparative Dravidian studies. Sebeok 1969:309-33.

Kroll, W. 1918. Anfangsstellung des Verbums im Lateinischen. Glotta 9.112-23.

Kronasser, Heinz. 1962. Etymologie der hethitischen Sprache, 1. Wiesbaden: Harrassowitz.

Kuiper, F. B. J. 1948. Proto-Munda words in Sanskrit. (Verhandelingen der Kon. Nederl. Akademie van Wetenschappen, Afd. Letterkunde, N.R. 51:3.)

-----. 1955. Rigvedic loanwords. Studia Indologica: Festschrift für Willibald Kirfel, ed. by O. Spies, 137-85. Bonn: Orientalistisches Seminar der Universität Bonn.

-----. 1967 (a). The genesis of a linguistic area. IIJ 10.81-102. [Reprinted in IJDL 3.135-53 (1974).]

-----. 1967 (b). The Sanskrit nom. sing. viṭ. IIJ 10.103-25.

-----. 1972. Review of Sebeok 1969. IIJ 14.285-94.

Lal, B. B. 1975. The Indus Valley Civilization. A cultural history of India, ed. by A. L. Basham, 12-19. Oxford: Clarendon Press.

Leumann, Manu. 1968. Zu den lautlichen Fernwirkungen im Altindischen. Pratidānam ... Franciscus Bernardus Jacobus Kuiper, 53-9. The Hague: Mouton.

Lévi, Sylvain. 1923. Pré-aryen et pré-dravidien dans l'Inde. Journal asiatique 203.1-57.

Lewy, Ernst. 1913. Zur Frage der Sprachmischung. Beiträge zur Sprach- und Völkerkunde: Festschrift Alfred Hillebrandt, 110-20. Halle: Waisenhaus.

Linde, P. 1923. Die Stellung des Verbs in der lateinischen Prosa. Glotta 12.153-78.

Lockwood, W. B. 1955. An introduction to Modern Faroese. København: Munksgaard.

Martens, Carl, and Peter Martens. 1965. Phonetik der deutschen Sprache. 2nd rev. ed. München: Hueber.

Masica, Colin P. 1974. The basic order typology as a definer of an Indian linguistic area. IJDL 3.154-80.

Master, Alfred. 1930. Some parallelisms in Indo-Aryan and Dravidian with special reference to Marāṭhī, Gujarātī, and Kanarese. Journal of the Bombay Branch of the Royal Asiatic Society, NS 5.95-140.

Mayrhofer, Manfred. 1951. Arische Landnahme und indische Bevölkerung im Spiegel der altindischen Sprache. Saeculum 2.54-64.

-----. 1953. Die Substrattheorien und das Indische. Germanisch-Romanische Monatsschrift 34.230-42.

Mayrhofer, Manfred. 1963. Kurzgefasstes etymologisches Wörterbuch des Alt-
indischen, 1. Heidelberg: Winter.

McAlpin, David W. 1974. Toward Proto-Elamo-Dravidian. Lg.50.89-101.

-----. 1975. Elamite and Dravidian: further evidence of relationship.
(With discussion by M. B. Emeneau, W. H. Jacobsen, F. B. J. Kuiper, H. H.
Paper, E. Reiner, R. Stopa, F. Vallat, R. W. Wescott, and a reply by Mc-
Alpin.) Current Anthropology 16.105-15.

Meillet, Antoine. 1905/06. Les nominatifs sanskrits en -ṭ. IF 18.417-22.

-----. 1909. Sur la disparition des formes simples du prétérit. Germanisch-
Romanische Monatsschrift 1.521-6.

-----. 1925. La méthode comparative en linguistique historique. Paris (et
alibi): Champion (aliisque).

-----. 1936. Esquisse d'une grammaire comparée de l'arménien classique.
2nd rev. ed. Vienne: Imprimérie des PP. Mekhitharistes.

Millardet, G. 1933. Sur un ancien substrat commun à la Sicile, le Corse, et
la Sardaigne. Revue de linguistique romane 9.346-69.

Miller, D. Gary. 1975. Indo-European: VSO, SOV, SVO, or all three? Lingua
37.31-52.

Morgenstierne, Georg. 1958. Neu-iranische Sprachen. Spuler 1958:155-78.

Newton, Brian. 1972. Cypriot Greek: its phonology and inflections. The
Hague: Mouton.

Nilakanta Sastri, K. A. 1966. A history of South India. 3rd ed. Madras:
Oxford University Press.

Oftedal, Magne. 1956. A linguistic survey of the Gaelic dialects of Scot-
land, 3. (NTS Supplement 4.)

Okell, John. 1969. A reference grammar of colloquial Burmese, 1. London:
Oxford University Press.

Pedersen, Holger. 1913. Vergleichende Grammatik der keltischen Sprachen, 2.
Göttingen: Vandenhoeck & Ruprecht.

Pinnow, Heinz-Jürgen. 1959. Versuch einer historischen Lautlehre der Kharia-
Sprache. Wiesbaden: Harrassowitz.

-----. 1960. Über den Ursprung der voneinander abweichenden Strukturen der
Munda- und Khmer-Nikobar-Sprachen. IIJ 4.81-103.

Pizzagalli, Angelo Maria. 1929. L'origine delle linguali nell'antico indi-
ano e l'influsso drāviḍico. Silloge linguistica ... G. A. Ascoli, 152-
69. Torino: Chiantore.

Pokorny, Julius. 1959. Indogermanisches etymologisches Wörterbuch, 1.
Bern: Francke.

Pott, August Friedrich. 1833, 1836. Etymologische Forschungen auf dem Ge-
biete der indogermanischen Sprachen, 1 & 2. Lemgo: Meyer.

Przyluski, J. 1921. De quelques noms anaryens en indo-aryen. MSL 22.205-10.

Ramanujan, A. K., and Colin Masica. 1969. Toward a phonological typology of the Indian linguistic area. Sebeok 1969:543-77.

Raun, A. 1971. Essays in Finno-Ugric and Finnic linguistics. (Indiana University, Uralic and Altaic Series, 107.)

Reichelt, Hans. 1909. Awestisches Elementarbuch. Heidelberg: Winter.

Renou, Louis. 1930. L'absolutif sanskrit en -am. MSL 23.359-92.

-----. 1940. Notes de grammaire védique, 1. BSL 41.208-14.

-----. 1956 (a). Histoire de la langue sanskrite. Lyon: IAC.

-----. 1956 (b). Sur l'évolution des composés nominaux en sanskrit. BSL 52.96-116.

Robertson, John S. 1975. A syntactic example of Kuryłowicz's fourth law of analogy in Mayan. IJAL 41.140-7.

Rohlfs, Gerhard. 1949. Historische Grammatik der italienischen Sprache und ihrer Mundarten, 1. Bern: Francke.

-----. 1970. Le gascon: études de philologie pyrénéennes. 2nd ed. Tübingen: Niemeyer.

Schneider, Ulrich. 1971. Der Somaraub des Manu: Mythus und Ritual. (Freiburger Beiträge zur Indologie, 4.)

Schwyzer, Eduard. 1939, 1949. Griechische Grammatik, 1 & 2. München: Beck.

Sebeok, Thomas A. (ed.) 1969. Current trends in linguistics, 5. The Hague: Mouton.

Senn, Alfred. 1966. Handbuch der litauischen Sprache. Heidelberg: Winter.

Shorto, H. L. 1962. A dictionary of spoken Mon. London: Oxford University Press.

Smith, Jesse Robert. 1971. Word order in the older Germanic dialects. University of Illinois Ph.D. dissertation.

Southworth, Franklin C. 1971. Detecting prior creolization: an analysis of the historical origins of Marathi. Pidginization and creolization of languages, ed. by Dell Hymes, 255-73. London: Cambridge University Press.

Speyer, J. S. 1896. Vedische und Sanskrit-Syntax. Strassburg: Trübner.

Spuler, B. (ed.) 1958. Iranistik, 1. (Handbuch der Orientalistik, 1:4:1.) Leiden: Brill.

Steblin-Kamenskij, M. I. 1965. Om alveolarer og kakuminaler i norsk og svensk. NTS 20.18-27

Strunk, Klaus. 1974. Lat. Gerundium/Gerundivum und die TG. Glotta 52. 273-87.

Subbarao, Karumuri V. 1972 (a). Extraposition and underlying word order. PIL 5:3.476-85.

-----. 1972 (b). Is Hindi a VSO language? Urbana: University of Illinois (mimeographed).

Thieme, Paul. 1942. Merkwürdige indische Worte. KZ 67.183-96.

-----. 1955. Review of Burrow 1955. Lg.31.428-48.

Thumb-Hauschild = Albert Thumb. 1958. Handbuch des Sanskrit, 1. 2nd rev. ed. by Richard Hauschild. Heidelberg: Winter.

Thurneysen, Rudolf. 1961. A grammar of Old Irish. Rev. transl. by D. A. Binchy and O. Bergin. Dublin: Institute for Advanced Studies.

Tyler, Stephen A. 1968. Dravidian and Uralic: the lexical evidence. Lg. 44.798-812.

Wackernagel, Jakob. 1896. Altindische Grammatik, 1. Göttingen: Vandenhoeck & Ruprecht.

-----. 1942. Indo-Iranica. (Posthumous publication by A. Debrunner.) KZ 67.154-72.

Wagner, Heinrich. 1958. Linguistic atlas and survey of Irish dialects. Dublin: Institute for Advanced Studies.

-----. 1967. Zur unregelmässigen Wortstellung in der altirischen Alliterationsdichtung. Beiträge zur Indogermanistik und Keltologie, ed. by W. Meid, 265-75. Innsbruck: AMOE.

Wakelin, Martyn F. 1972. English dialects: an introduction. London: Athlone Press.

Wüst, Walther. 1957. Thakkura-, m.: Zur Problematik der indoarischen Zerebralisation und des Lehnsprachen-Einflusses. PHMA 3.5-98.

Zide, Norman H. 1969. Munda and non-Munda Austro-Asiatic languages. Sebeok 1969:411-30.

Zvelebil, K. 1968. An introduction to the comparative study of Dravidian, 2. Archiv Orientální 36.252-94.

SEMANTIC FEATURES INDUCING THE GERMANIC DENTAL PRETERIT STEM

Irmengard Rauch

1.   The bifurcation of the Germanic verb into   strong and weak classes
has convinced most Germanic linguists since Grimm over a century and a half
ago that the peculiar characteristic of the Germanic verb system is pre-
cisely preterits by ablaut as opposed to preterits by dental suffix.[1]
Accordingly, the subsequent literature is replete with, on the one hand,
studies seeking the phonological provenience of the dental in the weak
preterit and, on the other hand, theories explaining the ablaut alterna-
tion in the strong classes IV through VII, which, like the dental preterit,
are judged by some scholars to be a Germanic innovation. Thus, we may
presently follow the ongoing discussion between Hammerich (1964) and Bech
(1972) on the phonological-morphological origin of the dental preterit. In
the case of the strong verb we may look e.g. to the recent statement by
Barnes and Esau (1973:8) that the ablaut pattern 'became phonologically
determined in Germanic.'

With those currently studying the Germanic verb who extrapolate beyond
the phonological-morphological problems into the area of cause, we find
Grimm's structuralism well attested. For example, Hiersche (1968:403)
speaks of a hole in the system caused by the original perfects becoming
presents in the case of the group of preterits known as the preterit-present
verbs.[2] On rare occasion, however, we do find in the literature arguments
considering the Germanic verb teleologically. Not surprisingly we can ex-
pect such an approach from Kurylowicz who, in fact, writes (1964:126-7):
'The real problem is not the origin of the dental suffix but the functional
(semantic) difference between the Germanic strong preterit, going back to
an IE perfect, and the dental pret., whatever its origin.' There is no
doubt that the semantic question is the ultimate, but we must temper it by
the realization that meaning and form are after all commensurate, and we
cannot divorce the latter from the former. Accordingly, the primary purpose
of this paper is to isolate and identify semantic features underlying the
Germanic dental preterit, which hitherto have been given, if any, unsystem-
atic and vague representation in the literature. Secondly, we will intro-

duce a principle in word formation as the semantic transformation inducing
the dental preterit.[3]

2. In an article 'The Germanic dental preterit, language origin and lin-
guistic attitude' (Rauch 1972b) we support the IE-$\overset{*}{t}$V- nominal suffix
derivation of the dental for the weak preterits, which was formulated by
Begemann in 1873 and extended by Brugmann in 1914. Support of the voice-
less dental rests primarily on semantic-syntactic grounds[4] and not at all
on the fact that the phonological IE *t is conveniently simple. That is,
derivation of the dental preterit from *t evokes but one phonological
anomaly, namely, the set of five (OE haefde 'had', OE hogde 'thought',
OS libda 'lived', OS sagda 'said', OHG dolta 'suffered') West Germanic,
possibly also North Germanic preterits with labial or velar plus voiced
dental. If this is not a dialect problem, in which case the anomaly may
not rest just as well with most Old High German and the Gothic reflexes, a
general Indo-European rule may apply. In that case the inverse of (Meillet) -
Lehmann's (1941:42) morphological principle, which constrains ablaut to roots
without stem-forming suffixes, would show these anomalies to have an under-
lying vocalic stem suffix, provided extension of the root by stem vowel
predates that by dental.

    Rather than the phonology of the dental suffix[5], the phonology of the
root of the preterit verb is of interest, but as a semantic sign. Zero or
ŏ grade ablaut with secondary accent is characteristic of the root of most
weak verbs as well as of the preterit-present verbs. This is not the case,
however with the remaining two sets, W. Gmc. *dŏ- 'do, cause' and Gmc.*wel-
'will, have the intention', which represent a heavy base and e- grade ablaut,
respectively. We shall see, nevertheless, that these differences are not
irreconcilable and accordingly the four sets are dominated by a uniform
preterit. In fact, some of the features of the weak verbs are, from this
viewpoint, residual in a few strong verb sets; once again we experience,
gratifyingly so, a synchronic linguistic bifurcation which is not at all
clean-cut.

    For instance, it is noteworthy that the verba pura, with supposed
genetic class VII reduplication, intersect with the weak verbs, especially
in North-West Germanic. Thus IE $\overset{*}{bhow}$- 'dwell' appears in Old High German

with a preterit in dental, būta (1.3. sg. indic.), and in -r-, biruun
(3. pl. indic.)[6] together with a reconstructed past participle in -n,
gibū̃an. The Old Norse paradigm is strong, e.g. bió (1.3. sg. pret. indic.)
with a reconstructed weak present bauaiþ (Jasanoff 1973:866 fn. 16), while
Go. bauan has all weak paradigms but for the 3. sg. pres. indic. bauiþ,
(cf. further Rauch 1972b:222-3). This is different from the alternation of
etymologically related forms which have been cleanly restructured in the
grammar, as e.g. Go. satjan 'set' beside Go. sitan 'sit'.[7] On the surface
the Germanic reflexes of IE bhōw- have an analogue rather in the generaliza-
tion process which children use in acquiring past tense forms for Modern
English, e.g., where so-called regular and irregular forms co-exist
(Cazden 1973:238). No inference is thereby made about distinctions which
existed in the genetic prehistory of the Germanic reflexes of IE bhōw-.

We suggest that the historical heteroclitic, i.e. many stemmed, verb
forms had become frozen before the paradigm restructuring which resulted
in the strong and weak division.[8] This is in accord with our reconstruction
(1972b:224) of the Pre-Germanic verb paradigmatics as a system of few finite
forms together with allied nominal forms. In effect, the strong and weak
roots shared the possibility of the same suffixes as well as of the same
ablauts. We refer to Kurylowicz's (1964:126) statement: 'The historical
system of Goth. baíran: bar; gabaíran: gabar is responsible for the
DISAPPEARANCE [emphasis mine] of the dental preterit in strong verbs.' With
regard to the ablaut we might ask why the weak verbs did not make use of
the strong vowel alternations as found in classes VI and VII in particular,
which are, for the most part, compatible with their root ablaut. In fact,
the defective ablaut of the preterit-present verbs is considered to be
residual.

3. Accordingly, it must be conceded that the origin of the dental preterit
is not phonologically based. That it is somehow motivated through restruc-
turing of the Indo-European aspect system is the general direction toward
which non-phonological hypotheses tend.[10] In Kurylowicz's (above) theory,
the dental suffixed to an ablauting root replaced the Indo-European
imperfect, so that *burþō(n) opposed *bar by the distinction 'simultaneity'
versus 'anteriority'. Through a new aspect opposition, *ga-bar came into

contrast with *bar, the first 'perfective', the second now 'imperfective' and no longer distinct from *burbo(n) but merging semantically with it in allo-relationship (1964:126-7). If we categorize the semantic opposition transitive: intransitive as belonging to the general category aspect, as Brugmann would allow (1916:69), the theory of Watkins (1962:40) is like-wise built on aspectual development. Based on the fact that intransitivity and passivity are equivalent, Watkins points out that the ⁎-to- participial suffix when joined to a transitive root yields a passive stem, but is neutralized when joined to an intransitive root. The latter is the case of *-to- joined to the preterit-present verbs and to the class one weak verbs with root final consonant, for which Watkins (44) claims 'an intransitive sense prevails'.

The immediate question is why the ⁎-to- participial suffix and not the ⁎-no- participial suffix is the effective suffix, if both possibilities existed in the Pre-Germanic verb paradigm. Watkins (1962:42) writes: 'The significant fact is that in...Germanic the distribution of the aorist/pret-erit forms in ⁎-t- follows exactly the distribution of the participle in ⁎-to-; where the participle is in ⁎(e/o)no-, there is no aorist or preterite in -t-.' We must realize that this is a statement of the results of, not of the reason for the bifurcation. In fact, Brugmann (1906:651) assigns ⁎-to- and ⁎-no- the same meaning when he writes that they '...besagten, dass etwas von einem Vorgang betroffen und durch ihn in einen gewissen Zustand geraten ist.'

To unite all verbs with a preterit by dental through the IE ⁎-to- suffix requires the mechanism of massive analogy, if the preterit-presents and the root consonant-final j-stems, under 25 in number, 'represent the original channel' and were 'imitated' by the weak verbs as Watkins holds(1962:44-5). It is possible that the preterit-presents had a high functional yield, and even if they did not, which Watkins seems to imply (45), he does not explain what cause the weak verbs would have for imitating them and the handful of j-stems. In short, this is an analogy begging for justification. It is questionable whether it would be fruitful to pursue this analogy directly with the few rules for the operation of analogy that we have at our disposal. It seems to me, rather, that we should take a closer look at the stems of the weak verbs as well as at the dental suffix itself. Morever, the analogy route

would eventually lead to this same close look.

4. As was pointed out in sect. 2, most weak verbs and the preterit-present verbs (cf. sect. 1 and fn. 2 above) can be equated on phonological grounds. The Germanic root *wel- and the West Germanic root *dō- complete the inventory of groups with a preterit by dental. Historical grammars divide the weak verbs into four classes according to the stem suffixes Gmc. *ja/ji/i, ō, ai, and nō. However, to a considerable extent this traditional classification is semantically arbitrary. For example, within Gothic we find Cl. 1 huggrjan 'to hunger' denominative to Go. hūhrus 'hunger' beside Cl. 2 gredon 'to hunger, be greedy' denominative to grēdus 'hunger'. Across dialects varied class marking occurs, thus the verb meaning 'to stone' belongs to Cl. 2 in Old High German, steinōn, but to Cl. 1 in Gothic, stainjan. And again within Gothic, the verb 'to hear' is heteroclitic, thus háusjan (Cl. 1) and háusjōn (cl. 2). Accordingly, the stem extension of a weak verb yields no absolute information as to its origin, nor does the reverse hold, i.e., the supposed semantic origin does not automatically relate to a certain stem suffix. Moreover, we reiterate that some of the features of weak verbs, e.g. root extension by nasal, are shared by strong verbs (cf. sect. 2 above). However, for the purpose of extracting semantic features of the weak verbs we may accept the traditional stem classification as a point of departure:[11]

> Cl.1 weak = [denominative, causative, iterative, intensive,...]
>
>> For example: [denominative]: Go. timrjan 'to build' to OHG zimbir 'wood'; [causative]: Go. satjan 'to set' to Go. sitan 'to sit'; [iterative, intensive]: Go. gōljan 'to greet'.

> Cl.2 weak = [demoninative, instrumental implications, causative, deverbative, intensive, iterative,...]
>
>> For example: [denominative]: OHG fiscōn 'to fish' to OHG fisc 'fish'; [instrumental implications]: OHG spornōn 'to hit with the feet' or OHG rotōn to play with a fiddle'; [causative]: OHG namnōn 'to name'; [deverbative,

intensive]: OHG sprangōn 'to bubble, boil'
to OHG springan 'to spring, jump'; [inten-
sive, iterative]: Go. wláitōn 'to look round
about'.

Cl.3 weak = [deverbative, intransitive, stative, medial,

denominative, inchoative,...]

For example: [deverbative]: OHG werēn 'to
last, continue' to OHG wesan 'to be'; [in-
transitive, stative, medial]: ON þegja 'to
be silent'; [denominative, inchoative]: OHG
fūlēn 'become rotten' to OHG fūl 'rotten'.

Cl.4 weak = [deverbative, denominative, intransitive, medial,

inchoative, passive,...]

For example: [deverbative, passive]: Go.
usbruknan 'to be broken' to Go. brikan 'to
break'; [intransitive, medial]: Go. andbundan
'to loosen oneself;' [denominative, inchoative]:
Go. swinþnan 'to become strong' to Go. swinþs
'strong'.

Pret.-pres. = [medial, passive, stative, intensive, iterative,

intransitive, completive,...]

For example: [medial, passive]: OE sceal 'I
(have determined for myself, taken upon myself;
it is appointed to me) should'; [stative,
intensive, iterative]: Go. man 'I think (and
continue to have in mind)'; [intransitive]:
OS dōg 'it is useful'; [completive]: ON veit
'I (have seen and) know'.

Gmc. *wel- = [medial, auxiliary,...]

For example: OS ef thu uuilt hnīgan te mi 'if
you have the intention to bow to me' (Heliand).

WCmc. *dō- = [medial, causative, auxiliary,...]

For example: [causative, auxiliary]: OE lifian
ic do 'I cause to live' (Regius Psalter); [medial,

auxiliary]: MHG daz si uns tuon bewarn 'that
they (semantically empty tuon) protect us'
Walther von der Vogelweide).

The semantic features of the *-to- suffix alone do not appear sufficient
to correlate with many found in the weak stems. In the literature on the
dental preterit, the IE *-tā- suffix (Prokosch 1939:197) and the IE *-ti-
suffix (Collitz 1912:103-4) have been brought into configuration with *-to-.
Bech (1963:3-4, 35) employs all three suffixes for the dental preterit, but
on the basis of adjective and noun congeners to the weak verbs formed with
these suffixes. The three suffixes show the following semantic features:

IE *-to- = [nominalization, medial, stative, completive,...]

For example: IE klutó-s 'heard, famous' ON
flóá 'flood'.

IE *-tā- = [nominalization, iterative, intensive, stative,...]

For example: [nominalization, stative]: Go.
jūnda 'youth'; [iterative, intensive] Lat.
jactāre 'to throw frequently'.

IE *-ti- = [nominalization, stative, completive,...]

For example: IE *dǝtīs 'gift', OS thurft 'need'.

There is no doubt that [medial] is the semantic feature minimal to each
set. In Cl.1 weak [causative] relates semantically to the [medial]; in Cl.2
weak [instrumental, causative]; Cl.3 weak [intransitive, stative, medial];
Cl.4 weak [intransitive, passive]; in the Pret-pres. [medial, passive,
stative, intransitive]; Gmc. *wel- [medial]; WGmc. *dō- [medial, causative],
and in the suffixes [stative] (cf. Rauch forthcoming).

Many roots of the dental preterits intersect. Cl.3 weak in particular
has cognate forms with the Pret.-press. verbs (Rauch 1972b:223); further
Cl.1 and Cl.4, e.g. Go. háiljan 'heal': gaháilnan 'be healed', Cl.3 and
Cl.4, e.g. Go. weihan 'make holy': weihnan 'become holy', Cl.1 and Gmc.
*wel-, Go. waljan 'choose': wiljan 'will, have the intention', and Cl.2
and Pret.-pres. Go. gaweisōn 'to visit': witan 'know'.[12] These verbs differ
by suffix, the last two sets by ablaut, and the last set by suffix also.

In the preterit they are one set by virtue of the dental, which must be compatible with some common feature or set of features in the stems with which it unites.

In close relationship are the features [nominal], [stative] and [completive]. The four classes of weak verbs all contain noun cognates. Arguments have been made for underlying nominalization in some weak verbs, e.g. Eng. drench which Hirt (1932:173), referring to Grassman, considers to be derived from a string like 'ich gehe (mit den Tieren) zum Trinken, zur Tränke.' Gmc. *wel- and WGmc. *dō- function as auxiliaries in nominalizations. The preterit-present verbs have genetically underlying the Indo-European perfect, itself denominative in origin and closely allied to the Indo-European middle (Kuryłowicz 1964:61-3, Watkins 1969:105-6, Jasanoff 1973:863). Semantically the preterit-presents signal a state resulting from completed action, i.e. an action in the past, whence the feature [completive]. According to Hirt (1928:chap. 14) the feature [intensive] is also integral to the history of the Indo-European perfect. However, most striking for our data is the generalization in the Indo-European perfect which relates the semantic features [stative, completive, medial]. The three dental suffixes unite in one set through, at the least, [nominal] and [(medial)-stative] features; here we exploit the generalization that in Germanic the nominally derived adjective and noun tend to be stative in meaning (cf. Rauch 1972b:223). The semantic feature paths of the verb stems and of the dental suffixes not only cross but merge in those features categorial to the genus verb viz. voice, aspect, and tense semantic features. We may sketch the intersection of the features by circles rather than a tree relationship, somewhat like the following (Fig. 1):.
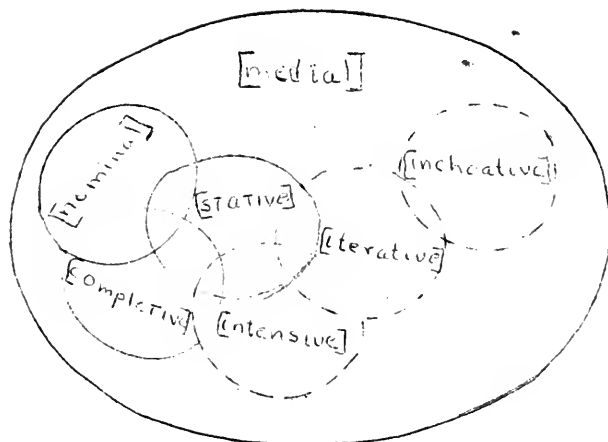
Figure 1

5.   In 'The Germanic dental preterit,...' (1972) we traced the nominal
generation of the Germanic preterit in dental.   In the present paper we
have isolated semantic features in the components of the compound pret-
erit formation.   Specifically, we distinguish the primary features blending
the two components to be the semantic features [medial, nominal, stative,
completive]; [medial] is the most natural feature.   The compound which is
the dental preterit is accordingly induced by a word formation transfor-
mation which conjoins components that are semantically redundant with
respect to each other in categorial features leading to grammaticalization.
Shared aspect, tense, and voice semantic features characteristic of the
verb underlie the two components of the compound which is incorporated
into the grammatical paradigm of the verb as the preterit stem.[13]

FOOTNOTES

[1]Grimm's classification (Deutsche Grammatik, 1819:558) was actually
in reaction to the synchronic description of some grammars of his time
which considered the dental preterit as the unmarked type (Prokosch 1939:160).

[2]Cf. Grimm (1822:851) '...zehn verba mangeln gänzlich der
praesentialflexion, verleihen aber der starken, ablautenden form ihres
praet. bedeutung des praesens und bilden dann für die bedeutung des praet.
eins nach schwacher form.'

[3] The present paper is the further development of Rauch 1972a.

[4] Begemann-Brugmann consider the dental preterit as derived essentially from preterit participles in IE *-to- which relate to present stems in IE *-to- and in turn to adjectives and nouns in IE *-tV-. The participle functioned as a finite verb or in paraphrasis according to well-attested Indo-European habits (cf. Rauch 1972b, pp. 225-6).

[5] The principal opposition theory to the voiceless dental, the theory of Grimm and others, is that the dental preterit is to be generated from a periphrastic base, most popularly containing the Indo-European root *dhē- 'set'. While, on the whole, neither the *t or *dh theories are simple, i.e. they involve a principally phonological-morphological configuration, the more recent composition theories (e.g. Wagner 1960, Sehrt 1961, Watkins 1962, Meid 1971) appear to differ from those of the nineteenth and early twentieth centuries by effecting a compromise with the *t theories.

[6] Particularly provocative is the fact that the preterit singular inflection of the Old Norse verba pura in -r- is identical with that of the weak preterit but for the dental. At least synchronically the dental and the -r- have the same meaning. If the Norse -r- is, in turn, related to the Old High German preterit in -r- we get close to a laryngeal derivation on the dental; cf. fn. 12 below.

[7] We are, by the way, greatly deceived if we generalize that strong verbs tend to decrease in the history of Germanic on the basis of our knowledge of Contemporary English or German. Wilmanns (1899:43) records substantial data for strong verbs which are first cited in Middle High German, suggesting they are innovations and not just accidentally uncited previously. Obviously a different semantic mechanism functioned in the grammar of Middle High German than in New High German.

[8] The morphemic variations are analogous to certain variations on the phonological levelñ cf. '...a prelude to phonological change e.g., is allophonic swarming which settles down to a petrified emic construct' (Rauch forthcoming).

[9] According to historical grammars, the Germanic weak verbs (cf. sect. 4 below) represent present stem types, e.g. stems in Gmc. *-ja-, in nasal, denominatives (Brugmann 1916:48, 51, 478) which were restricted to a present stem only, i.e., they had no related aorist stems nor a perfect stem. On the other hand, the characteristically ablauting preterit of the strong verbs (cf. sect. 1) reflects an Indo-European perfect stem (Polomé 1964:879-880). Hirt (1928:301) divides all Indo-European verbs into strong: weak, or primary: secondary, on the basis of multiple stems, the first containing present, aorist, and perfect stems, the second noun-related present stems only. The division is not clean-cut; witness Hirt's 'starke Verben jüngerer Schicht,' which lack a perfect stem and the strong aorist stem (p. 311). Although we observe the correlation strong verb: multiple stem, weak verb: single stem, we do well to withhold priority in origin on this basis, since finite use of participles as well as periphrastic tense formations date back to Indo-European times (cf. fn. 4).

[10]So, e.g. Makaev (1964:29-30) writes: 'The architectonically simple verbal paradigmatics of Early Germanic, based on the opposition infect/ perfect, was no longer functional in Late Germanic, where it was replaced by a more complex scheme based on the opposition present/preterit, which carried a temporal rather than an aspectual relevance. In the verbal sub-system of Common Germanic this found expression in the creation of...the Germanic dental past.'

[11]The features given are not necessarily exclusive or minimal. Redundancies are not to be removed within a set or across sets for the purposes of the present paper. The examples, while representative, need not be completely specified.

[12]WGmc. *dō- occupies the unique position of being a verbum purum, ablauting, with a preterit which may be viewed either as a reduplicated stem or a stem in dental, and with a strong past participle. The verb *dō- notwithstanding, from the viewpoint of the dental preterit one cannot escape the observation that the Germanic class VII verb displays phonological and semantic features which represent a transition class between strong and weak verbs. This is being pursued in a separate paper (cf. sect. 2 above).

[13]Interestingly, we may observe further semantic redundancy with and in the proliferation of proposed inflectional endings for the dental preterit to be found in the literature, e.g. Collitz (1912): Indo-European perfect middle and optative; and Must (1952): Indo-European subjunctive, intensive, durative. This again requires separate study.

REFERENCES

Barnes, Mervin and Helmut Esau. 1973. Germanic strong verbs: a case of morphological rule extension. Lingua 31:11-34.

Bech, Gunnar. 1963. Die Entstehung des schwachen Präteritums (Det Kongelige Danske Videnskabernes Selskab, Historisk-filosofiske Meddelelser 40, 4.) København: Munksgaard.

_____. 1972. Eine schwache Hypothese vom schwachen Präteritum. Studia Neophilologica XLIV. 142-50.

Begemann, Wilhelm. 1873. Das schwache Präteritum der germanischen Sprachen. Berlin: Weidmann.

Brugmann, Karl. 1914. Das schwache Präteritum, Beiträge zur Geschichte der Deutschen Sprache und Literatur 39. 84-97.

_____. 1906. Grundriss der vergleichenden Grammatik der indogermanischen Sprachen, 2nd. ed., vol. II, pt. 1. Strassburg: Trübner.

_____. 1916. Grundriss der vergleichenden Grammatik der indogermanischen Sprachen, 2nd. ed., vol. II, pt. 3, 1. Strassburg: Trübner.

Cazden, Courtney B. 1973. The acquisition of noun and verb inflections.
    Studies of child language development, ed. C. A. Ferguson and D. I.
    Slobin, 226-40. New York: Holt, Rinehart, Winston.

Collitz, Hermann. 1912. Das schwache Präteritum und seine Vorgeschichte
    (Hesperia, 1.) Göttingen: Vandenhoeck and Ruprecht.

Grimm, Jacob. 1822. Deutsche Grammatik, 2nd ed., vol. 1. Göttingen:
    Dietrich.

Hammerich, L. L. 1964. Eine neue Hypothese vom schwachen Präteritum.
    Taylor Starck Festschrift, ed. E. Coleman et al., 12-18. The
    Hague: Mouton.

Hiersche, Rolf. 1968. Neuere Theorien zur Entstehung des germanischen
    schwachen Präteritums. Zeitschrift für deutsche Philologie 87.
    391-404.

Hirt, Hermann. 1928. Indogermanische Grammatik. vol. 4. Heidelberg:
    Winter.

_____. 1932. Handbuch des Urgermanischen. vol. 2. Heidelberg:
    Winter.

Jasanoff, Jay H. 1973. The Germanic third weak class. Language 49.
    850-70.

Kuryłowicz, Jerzy. 1964. The inflectional categories of Indo-European.
    Heidelberg: Winter.

Lehmann, Winfred P. 1941. The Germanic dental preterit and the dh-
    determinative. University of Wisconsin dissertation.

Makaev, E. A. 1964. The morphological structure of common Germanic.
    Linguistics 10. 22-50.

Meid, Wolfgang. 1971. Das germanische Präteritum. (Innsbrucker Beiträge
    zur Sprachwissenschaft, 3.) Innsbruck: Kowatsch.

Must, Gustav. 1952. Again the origin of the Germanic dental preterit.
    Language 28. 104-6.

Polomé, Edgar C. G. 1964. Diachronic development of structural patterns in
    the Germanic conjugation system. Proceedings of the Ninth International
    Congress of Linguists, ed. H. G. Lunt, 870-80. The Hague: Mouton.

Prokosch, Eduard. 1939. A comparative Germanic grammar. Philadelphia:
    Linguistic Society of America.

Rauch, Irmengard. 1972a. On the semantic base of the Germanic dental
    preterit. Paper read to the Linguistic Society of America, July 1972.

Rauch, Irmengard. 1972b. The Germanic dental preterite, language origin, and linguistic attitude. Indogermanische Forschungen 77. 215-33.

_____. forthcoming. Where does language borrowing end and genetic relationship begin? IXth International Congress of Anthropological and Ethnological Sciences, World Anthropology. The Hague: Mouton.

Sehrt, Edward H. Zum schwachen Präteritum. Beiträge zur Geschichte der deutschen Sprache und Literatur (Halle) 82. 265-69. (Sonderband Elisabeth Karg-Gasterstädt 75. Geburtstag).

Wagner, Heinrich. 1960. Keltisches t-Präteritum, slawischer Wurzelaorist und germanisches Präteritum. Zeitschrift für celtische Philologie 28. 1-18.

Watkins, Calvert. 1969. Indogermanische Grammatik. vol. III, pt. 1. Heidelberg: Winter.

_____. 1962. The origin of the t-preterit. Eriu 19. 25-46.

Wilmanns, W. 1899. Deutsche Grammatik. 2nd ed., vol. 2. Strassburg: Trübner.

PERIPHRASTIC VERB FORMATION IN PERSIAN[*]

Gloria Sheintuch

0.   This paper provides a description of the Persian periphrastic verb (PV),
pointing out the features that render it distinct from the compound verbs
commonly found in many languages, and traces, to the extent that it is possible,
the historical development of the PV formation process from Old to Modern
Persian. It is shown that though PV formation undoubtedly played a productive
role in the nativization of foreign vocabulary, it is also a productive device
for generating verbs from native vocabulary. Speculations are offered as to
how historical development of the PV **structure** accounts for certain peculiar-
ities of the synchronic syntactic and derivational behavior of the PV.

1.0   The term PV is used to refer to morphologically complex verbs of the
type guš dādan 'listen' (literally 'ear' + 'give') and sar āmadan 'overflow'
(literally 'head' + 'come') which are found in great abundance in contemporary
Persian. A rough survey (cf. Telegdi 1950-51:316) based on an arbitrarily
selected, approximately four-hundred verb section of a German-Persian dic-
tionary reveals that one out of every ten verbs in modern Persian consists
of a pure Persian root and is of a non-periphrastic structure. The rest
are PV's consisting of an indeclinable .P, Adj. P, or Adv.P., either loan
or native, followed by a pure Persian single verb stem which serves as the
auxiliary (AUX) in that it may be inflected, carrying all the syntactic
features generally attached to the verb: tense, mood, negativity, person,
and number. The choice of the AUX depends, to some extent, on properties
of the verb such as transitivity, causativity, and voice. The class of
periphrastic AUX includes over thirty of the most common pure Persian simple
verbs, the most recurrent of which are šodan 'become,' kardan 'do',
dādan 'give', xordan 'eat', and zadan 'hit.'[1]

   The PV in Persian has not been discussed in great detail in the
linguistic literature, though traditional grammarians (Jones, 1969;
Lampton, 1957; Lavian, 1971) have always been aware of the abundance of
what they call "compound verbs" in Persian.

1.1   PV's have the following structure.

$$\left\{\begin{array}{c} .P \\ ADJ.P \\ ADV.P \end{array}\right\} - AUX$$

Examples from each of the PV types are <u>guš dādan</u> 'listen', (literally 'ear' +
'give'), <u>garm kardan</u> 'heat' (literally 'hot' + 'do'), and <u>dar raftan</u> 'slip',
(literally 'out' + 'go') respectively. The order of constituents within
the PV follows the general pattern characterizing the ℙ constituents of
the language. Persian has an SOV (Subject Object Verb) word order, as
shown in (2).

    (2)   parviz   ketāb   xānd.   'Parviz read a book.'

           'Parviz' 'book' 'read.'

The PV is recursive in that (a) it may be derived from another PV, and (b)
it may be composed of the same constituents as the ℙ containing it. Type
(a) is illustrated by the PV <u>faryād</u> <u>boland</u> <u>kardan</u> 'scream' (literally 'cry'
+ 'high' + 'do') which is, in turn, derived from another PV, namely <u>boland</u>
<u>kardan</u> 'raise', (literally 'high' + 'do') such that the former PV literally
means 'cry' + 'raise'.

    (3) $[_{PV}$faryād + $[_{PV}$boland + kardan]]

Type (b) is illustrated by the ℙ <u>kalame</u> <u>harf</u> <u>zadan</u> 'speak' (literally 'word'
+ 'word' + 'hit'), both the ℙ and the PV within it having the constituent
structure ℙV.

    (4) $[_{\mathbb{P}}$ kalame $[_{PV}$harf + zadan]]

1.2 Compound verbs in many languages are different from their Persian equi-
valents, the PV's, in that the former do not play the role of a verbal unit
syntactically. For example, a compound verb formed from a simple transitive
verb and a direct object ℙ, cannot take a direct object of its own, even
though its overall meaning is inherently transitive. Thus, unlike PV's,
it is the simple verb alone that plays the role of the verbal unit within a
compound verb construction. In order to make clear this difference, examples
of compound verbs are taken from English, an Indo-European language, and
from Hebrew, a Semitic language, are contrasted with Persian PV's.

    In English the noun <u>beating</u> is derived from the verb <u>beat</u> which is a
simple transitive verb that takes a direct object, as in the sentence:

    (5) Dan   beat   Mary

         ℙ   [V   ℙ]

               ℙ

The compound verb derived from the noun <u>beating</u> and the simple verb <u>give</u>,
namely <u>give a beating</u>,though very similar in meaning to <u>beat</u>, is different
from it in that it cannot take a direct object and is restricted to taking

the dative case only:

(6) Dan   gave   a beating   to   Mary   'Dan gave Mary a beating'
     [NP   V   NP   dative   NP]
                              marker(d.m.)

In sentence (6) gave is the verb, taking at most one accusative and one
dative NP, in this case beating and Mary respectively.

Likewise, in Hebrew, the noun maka 'beating' is derived from the simple
transitive verb lehakot 'beat', which takes a direct object as in sentence:

(7) dan   hika   et-meri   'Dan beat Mary.'

     'Dan' 'beat' 'definite-Mary'
                    accusative
                    case marker
                    (d.a.c.m.)

The compound verb derived from the noun maka and the simple verb latet 'to
give', namely latet maka 'give a beating' cannot take a direct object,
and is restricted to taking the dative case only:

(8) dan   natan   maka   le-meri   'Dan gave Mary a beating.'
     'Dan' 'gave'   'beating' 'd.m.-Mary'

In sentence (8) natan 'gave' alone plays the role of a verb, taking at most
one accusative and one dative NP, maka and meri respectively.

In Persian, on the other hand, the noun kotak 'beating' combines with
the simple transitive verb zadan 'hit' to form the PV kotak zadan 'beat'
(literally 'beating' + 'hit'), which is transitive and capable of taking a
direct object of its own. In Persian, unlike English, one can say:

(9) dan   meri-   rā   kotak   zad   'Dan beat Mary.'
     'Dan' 'Mary'   (d.a.c.m.) 'beating' 'hit'

where meri, as indicated by the definite accusative case marker-rā is the
direct object of the PV kotak zad, which acts as a verb unit, and not of
the simple verb zad which has a direct object of its own--kotak. One can
thus conclude that in Persian a PV can be used alternately with its simple
verb equivalent, if attested, while the compound verb in English and Hebrew
cannot.

It is also interesting to note that Hindi compound verbs, including
those which contain Arabic loans acquired through contact with Persian,
are not all verbal units in the same way that Persian PV's are. A great
number of Hindi compound verbs comprising Perso-Arabic loans differ from
Persian PV's in that the former cannot take a direct object NP, even when
their meanings are transitive, since the NP within the compound verb holds

the direct object position in relation to the AUX, which acts as the sentential verb. Thus, many Hindi compound verbs take a possessive NP in a context where a simple V equivalent would take an accusative NP, Consider the following example.

(10) mẽ jān-ko   sərāh rəha-hũ   'I praise John.'
      'I' 'John-animate accusative   'praise' -imperf.-1 Sg.
                    case marker (a.a.c.m.)

where sərāhrəhāhũ 'praise' is a native simple verb.

A compound verb tārif kərnā also meaning 'praise' (literally 'praise + 'do') with a Perso-Arabic compound ed NP taʔrif 'praise, takes a genetival instead of an accusative NP; even though the verb is used to express the same transitive notion, since the direct object position is filled by the NP within the compound verb.

(11) mẽ   jan-kī tārif kər-rəha-hũ   'I praise John,'
      'I' 'John-of' 'praise' 'do'

Notice that jān-ki (11) is not accusative, but possessive indicating that the compound   verb in Hindi is not a verbal unit.[2]

1.3 The periphrastic AUX can be classified into two types: (a) 'semi periphrastic AUX' and (b) 'fully periphrastic' or, simply speaking, 'periphrastic AUX.[3] The class of semi-periphrastic AUX includes the verbs whose only function is to reflect certain syntactic features associated with the verb, such as mood and voice, generally not expressed in a single-stem verb in Persian. The position of the semi-periphrastic AUX is after the participial form with which it combines. Thus the semi-periphrastic AUX is like the "regular" AUX in its functions, though structurally it is similar to the periphrastic AUX in that it does not combine with a declineable constituent. Its main difference from the periphrastic AUX is that the latter does not combine with the participial forms of pure Persian single-stem verbs, while the former invariably does. An example of the semi-periphrastic AUX is šodan 'become' which is used in the passive forms of simple verbs in Persian. The passive form of the simple verb xordan 'eat', for example, is:

(12) xorde   šodan   'be eaten'
      'eaten' 'become'

šodan, however, can also be used as a periphrastic AUX in the formation of PV's such as pā šodan 'get up' (literally 'leg' + 'become') and piyāde šodan

'get off'. (literally 'on foot' + 'become'). Therefore an occurence of
šodan in a verbal compound is to be classified into either one of the two
categories, semi-periphrastic or periphrastic AUX, according to its functions
in that verbal expression.

The periphrastic AUX, described earlier, is a single-stem pure Persian
verb that combines with a iP, ADJ.P., or ADV.P. to form a completely different
lexical item of the verbal category--the PV. The periphrastic AUX, unlike
semi-periphrastic ones, do not combine with participal forms of another
verb in order to reflect a different syntactic aspect of it, such as voice.
Another difference lies in the fact that the periphrastic AUX becomes partially
reduced in its semantic contents, relative to its simple verb occurences,
while the semi-periphrastic AUX retains its full semantic load. Thus in pā
šodan the periphrastic AUX šodan is semantically reduced, to some extent, for
pā šodan does not mean 'become a leg' but 'get up' which implies 'stand on
a leg', whereas in (12) the semi-periphrastic AUX šodan used with the past
participal form of the active verb xordan to generate the passive form,
retains its semantic contents--'be eaten'. Other examples illustrating that
the semantic contents of the periphrastic AUX is generally reduced, and
that the non-verbal constituents of the PV "charge" it to a certain extent
are:

(13) češm   duxtan   'watch closely'
      'eye' + 'sew'
(14) ǰāru   kardan   'sweep'
      'broom' + 'do'

In (13) and (14) the periphrastic AUX's acquire an instrumental case feature
from the general meaning of the iP's with which they combine. Thus in (13),
duxtan 'sew' takes on the meaning of 'use' so that češm duxtan comes to mean
'use an eye (so see)'. Likewise in (14) kardan 'do' takes on the semantic
contents of 'use' such that ǰāru kardan takes on the meaning 'use a broom
(to sweep)'. In general a periphrastic AUX acquires the meaning 'use' when
combined with a semantically instrumental iP to form a PV.

Though the periphrastic AUX's lose most of their semantic contents, the
choice of AUX is not an altogether arbirary process. Different AUX's are
used with the same non-verbal element to produce transitive vs. intransitive
forms, active vs. passive forms, causative vs. reflexive forms, or stative

vs. active forms of a particular PV. For example, with the ADJ.

bidār 'awake', the use of the AUX šodan 'become' produces bidār šodan
'awaken' (literally 'awake' + 'become') in its intransitive, reflexive sense,
while the use of the AUX kardan 'do' produces bidār kardan 'awaken' (lit-
erally 'awake' + 'do') with its transitive, causative reading.

Though the periphrastic AUX is highly reduced in semantic contents, no
two auxiliaries are completely interchangeable. The AUX's kardan 'do',
nemudan 'show', and farmudan 'order' seem to be used interchangeably in
many PV's to form doublets or triplets such as soāl kardan (literally
'question' + 'do'), soāl nemudan (literally 'question' + 'show'), and soāl
farmudan (literally 'question' + 'order'), all basically meaning 'ask'. How-
ever, the three PV's are not exact synonyms, for they reflect very fine
shades in meaning. soāl farmudan, for example, expresses respect towards the
"performer" of the action, and is used in sentences such as:

> (15) šāh   soāl   farmud   'The king asked a question.'
>   'king' 'question' 'ordered'

soāl nemudan differs from soāl kardan in that it belongs to a more literary
level of Persian; soāl kardan is more commonly used in the spoken language.
When used with an ADJ.P. in a periphrastic construction, the three AUX's
kardan, nemudan, and farmudan may not even be all grammatical, let alone
interchangeable. For example Persian has the PV divāne kardan 'to make crazy'
(literally 'crazy' + 'do'), but not the expressions *divāne nemudan
(literally 'crazy' + 'show') and *divāne farmudan (literally 'crazy' + 'order').
2.0 PV formation is not exclusively a device to fill in semantic gaps in
the verbal category, where there are no simple verbs to express a certain
notion. There is evidence, throughout its history, that the process of PV
formation is not only a process of compensation for the lack of certain
verbs in the language, but also a deliberate process to supplement and
eventually supplant single-stem verbs in Persian.
2.1 The PV pattern is attested in Avestan, spoken hundreds of years prior
to the influence of Arabic on Persian, thus eliminating the possibility
that this process was devised by the language solely for the purpose of
borrowing Arabic verbs that had no lexical representation in Persian.
Though many compound verbs are attested in Avestan, the variety of
possible periphrastic AUX's is limited,and their combinations with nonverbal
elements are greatly restricted. The simple verb šemārdan 'count', and its

PV derivative and synonym **šemār** kardan (literally 'count' + 'do') for
example, can be traced back to Avestan. (cf. Telegdi, 1950-51:330-1). The
few usages of such verbs in Avestan (cf. Reichelt, 1909:228) are:[4]

(16) yō   narəm   vīxrūməntəm   xᵛarəm   ʃainti
      'who''somebody(acc)''bloody(acc)'-wound(acc)'   'hits'
      'Who gives somebody a bloody wound.

(17) skəndəm   sē   manō   kərənūiəi
      'destruction(acc)'   'his' 'mind(acc)'   'do'
      'destroy his mind'

(18) āaṯ   tā   hazō   nivarəzayən   daēva
      'then' 'them(acc)'   'force(acc)'   'committed'   'the daēvas'
      'then those Doevas committed force against them.'

2.2 Pahlavi, generally known as Middle Persian, spoken in 300 B.C. -
900 A.D.; also prior to the Mohammedan and Arab influence, has more com-
pound verbs than do Old Persian and Avestan, though the frequency of
PV's in Pahlavi texts is rather limited in comparison with Modern Persian.
Grammars of Pahlavi discuss under the topic of "compound verbs" verbs of
the type PARTICLE + V, and not PV's as defined in this paper. The failure
on the part of Pahlavi grammarians to devote any substantial work to the
description of the PV, even though scattered examples of PV's are attested,
can be interpreted to be indicative of the following: a) PV formation was
not productive enough in Pahlavi to be recorded in grammar books, and
 b)   that the syntactic behavior of the PV's was not uniform enough (as in
Modern Persian) to warrant analysis and discussion. One can therefore
conclude that the productivity and syntactic patterns of this construc-
tion are relatively recent developments, the conclusion pending a more
thorough examination of the PV's in Pahlavi.

3.0 It seems that contact with Arabic may have stimulated the spread of
this construction, for the PV's in all Islamic languages and Yiddish
almost always contain Semitic non-verbal elements (Wexler; 1971;1974).
Periphrastic constructions using Arabic are extremely popular in Iranian
and Turkic languages which had contact with Arabic, from which the non-
verbal components of the PV were borrowed. In Yiddish the non-verbal
component of the PV is invariably taken from Hebrew. It is in such
situations of large-scale borrowing that the PV construction becomes
productive. The language borrows a foreign noun and derives a PV from

it, without subjecting the loan word to any of the inflections that a
native verb might take.PV formation, then, is a "strategy" of the language
to get around a general phenomenon observed in situations of language
contact, namely the unreadiness of verbs (as opposed to nouns) to be
borrowed and nativized.

A great majority of PV's in Persian contain a non-verbal constituent
borrowed from Arabic. The basic types of Arabic loans penetrating into
the Persian PV are verbal nouns, present active participles, and past
passive participles from all the Arabic verb patterns (cf. Rastorgueva
1964:65-6).⁵ See examples (19)-(21)

(19) Arabic verbal noun ɣalabé 'victory':

ɣalabe   kardan   'vanquish'
'victory'   +   'do'

(20) Arabic present active participle ɣāleb 'vanishing:

ɣāleb   kardan   'vanquish'
'vanquish(ing)' +   'do'

(21) Arabic passive past participle maɣlub 'vanquished':

maɣlub   kardan   'vanquish'
'vanquished'   +   'do'

Two or more synonymous PV's can thus be formed, each time using a different
form of the same Arabic loan word, whereas for each PV containing a non-
verbal element of pure Persian origins, there are no synonymous PV's
using other derivatives of the same non-verb. There is no preference
as to which of the three forms of the verb is borrowed from Arabic;
sometimes the verbal noun and the two participles can be used in PV's to
convey the same semantic contents, as seen in examples (19-21); where the
periphrastic AUX has the power to "undo" the passive sense inherent in the
Arabic past passive participle. Persian PV's formed from Arabic loans,
therefore, involve a distortion of the Arabic syntactic norms. Persian
disregards the [+passive] feature of the past passive participial forms
of the Arabic verbs it borrows, as can be seen in example (21), where
maɣlub is used with the active AUX kardan 'do' to produce an active verb
maɣlub kardan 'vanquish'. In order to form a passive PV with maɣlub,
the Persian language has to combine the passive AUX šodan 'be' with it.

(22)   maɣlub   šodan   'be vanquished'
'vanquished'   +   'become'

4.0 Evidence that PV formation is not essentially a "borrowing" device is the fact that Arabic stems are borrowed to derive PV's even when there are no semantic gaps in the Persian language for that verb. The verbal noun hesāb 'account' is borrowed and "periphrased" by the language to yield the verb hesāb kardan 'count' (literally 'account' + 'do') when the native šemārdan 'count' and its periphrastic derivative šemār kardan 'count' (literally 'counting' + 'do') already are part of the lexicon.[6] Another example is the borrowing of the Arabic verbal noun soāl 'question' to form the   PV   soāl kardan 'ask' (literally 'question' + 'do'), when there exists a native simple verb porsidan having the same meaning.

4.1 Arabic is not the only foreign source of the non-verbal component of the PV in Persian. There are verbal semantic gaps in Persian for which PV's are created by combining a Western European non-verbal component and a native periphrastic AUX. A recent modern example of such a verb is telefon kardan 'call up' (literally 'telephone' + 'do') formed by combining the Western nominal loan telefon 'telephone' with the native periphrastic AUX kardan 'do'. telefon kardan, being a verb of calling, takes a dative iP introduced by the marker be - 'to':

(23)   parviz   be-meri   telefon   kard   'Parviz called Mary up.'
        'Parviz 'to-Mary' 'telephone' 'did'

There are also PV's such as rezerv kardan 'book' (literally 'reserve' + 'do') formed from European loans, and which take an accusative iP.[7]

(24)   parviz   otāq-rā   rezerv   kard   'Parviz reserved the room.'
        'Parviz' 'room-   'reserve'   'did'
                 d.a.c.m.'

4.2 The gradual replacement of simple verbs by PV's is a prevalent trend in contemporary Persian. PV's are formed using native vocabulary even when their simple verb counterparts are still in usage. The periphrastic forms rather than the simple verbs expressing the same semantic contents are becoming dominant in the spoken language, pushing their simple form paraphrases into the level of the formal literary language. For example, yād gereftan 'learn' (literally 'memory' + 'take') is supplanting āmuxtan 'learn', nešān dādan 'show' (literally 'sign' + 'give') is replacing nemudan, which is itself a productive periphrastic AUX, and farār kardan 'escape' (literally 'free' + 'do') is replacing

gorixtan 'escape'. In some cases the PV and the single verb it is
supplanting are derivatives of the same stem, as is the case with
yosteju kardan 'search' ('search' + 'do') and yostan 'search' and sanj kardan
'estimate' (literally 'estimate' + 'do')and sanjidan 'estimate; clearly indi-
cating that the periphrastic constructions are not formed in order to fill
the semantic gaps in the verbal lexicon.

4.3 Another aspect of the productiveness of the PV in Persian is that a
different verb is generated for each verbal form such as active, passive,
stative, causative, reflexive, etc. using the same non-verbal stem, combined
with different periphrastic AUX's. For example, form the native noun stem
yād 'memory' the following PV's are derived:

(25)	yād	gereftan (active, transitive)	'learn'
	'memory' +	'get'	
(26)	yād	dādan (active, causative, transitive)	'teach'
	'memory' +	'give'	
(27)	yād	dāštan (stative)	'know'
	'memory' +	'have'	
(28)	yād	āvordan (active, transitive)	'remind'
	'memory' +	'bring'	
(29)	yād	āmadan (passive)	'be remembered'
	'memory' +	'come'	
(30)	yād	raftan (passive)	'be forgotten'
	'memory' +	'go'	

4.4 Another aspect of the productivity of the PV formation process lies
in the fact that a certain periphrastic AUX may be paired with different
non-verb constituents to produce a variety of verbs. For example, using
the simple native verb xordan 'eat' as the AUX, the following PV's, among
others, can be formed:

(31)	zamin	xordan	'fall'
	'ground' +	'eat'	
(32)	čub	xordan	'be beaten (with a rod)'
	'stick' +	'eat'	
(33)	qose	xordan	'worry'
	'worry' +	'eat'	
(34)	qasam	xordan	'swear'
	'swear' +	'eat'	

(35)	farib		xordan	'be cheated'
	'cheating'	+	'eat'	
(36)	afsus		xordan	'regret'
	'grief'	+	'eat'	
(37)	dast		xordan	'be used'
	'hand'	+	'eat'	

In the above PV's part of the semantic contents inherent in the verb xordan 'eat' is reduced, and, as an AUX, it acquires a different semantic load from each of the different non-verbal constituents with which it combines.

The fact that the meanings of the PV's are not always absolutely predictable seems to indicate that the PV's are idiomatic. On the other hand, their recursiveness, their uniform structures, their syntactic behavior, and the predictability of their verbal features such as voice, causality, reflexivity, etc. argue for their productivity. The question remains open as to whether the PV's in Persian are "lexicalized" or whether they are to some extent genuinely productive.

5.1 Among the features that establish the PV formation as a productive process is the regular syntactic behavior of the PV's. The PV behaves as a single verbal unit, capable of taking a $\bar{P}$ bearing the same grammatical relation to it as the one it includes. Further evidence in support of a V analysis of the PV comes from the inseparability of its components by other elements of the sentence. For example, the placement of the regular AUX is limited to pre-PV position as shown in (38) while the acceptability of (39) is rather marginal:

(38) bače [$_{VP}$ dārad   zamin   mixorad]   'The child is falling'.
     'child' 'has'   'ground'   'eat'

(39) ?bace [$_{VP}$ zamin   dārad   mixorad]   'The child is falling.'
     'child' 'ground'   'has'   'eat'

However, within a regular VP the regular AUX can appear either in the pre-verbal or the pre-object position, as examples (40)-(41) indicate:

(40) bače [$_{VP}$ dārad   sib   mixorad]   'The child is eating
     'child' 'has'   'apple'   'eat'   an apple.'

(41) bače [$_{VP}$ sib   dārad   mixorad]   'The child is eating an apple.'
     'child' 'apple'   'has'   'eat'

A constituent that may interrupt a PV sequence, however, is a direct object or indirect object clitic. Object clitics are optionally placed in

Persian after the non-verbal element of a PV as in:

    (42) parviz   <u>miz - rā</u>   [pāk-(eš) kard] 'Parviz cleaned the
                                                                              table.'
           'Parviz' 'table-d.a.c.m.'   'clean-(it)' 'did'

which has the following syntactic variant, where the clitic is placed after
the periphrastic AUX:

    (43) parviz   miz -   rā [pāk kard - (eš)]

With simple verbs the object clitic is generally placed after the verb.

    (44) parviz   <u>sib - rā</u>   xord-(eš)   'Parviz ate the apple.'
           'Parviz' 'apple-d.a.c.m.' 'ate'-(it)'

Indirect object clitics in sentences containing PV's likewise appear in one
of two possible positions:

    (45) parviz [$_{PV}$soāl   <u>eš</u>   kard] 'Parviz asked him (something)'
           'Parviz' 'question' '-him' 'did'

    (46) parviz [$_{PV}$soāl   kard - <u>eš</u>] 'Parviz asked him
                                                         something)'
           'Parviz' 'question' 'did'   'him'

The indirect object clitics in the post-direct object position are less
acceptable in VP's than in PV's. This difference in acceptability strengthens
the claim that the underlying structure of PV's is different from the VP
constituents of Persian sentences. Notice the sentences:

    (47) parviz   soāl   [$_V$porsid - <u>eš</u>] 'Parviz asked him a question.'
           'Parviz' 'question' 'asked'   'him'

    (48) ?parviz soāl   -   eš [$_V$porsid]   'Parviz asked him a question.'
           'Parviz' 'question' 'him'   'asked'

where <u>porsid</u> 'asked' is a simple transitive verb and <u>soāl</u> 'question' its
direct object.

    Another type of example supporting a V analysis for the PV comes from
the inseparability of its components by modifiers as in example (49)

    (49) *parviz   <u>guš -e</u>   ziyād <u>dād</u> ('Parviz listened much')
           'Parviz' 'ear-adjectival' 'much' 'gave'
                     liason(a.1.)

However, there is a type of PV's that at first glance seem to violate the
"inseparability restrictions" imposed on them. Consider (50):

    (50) parviz   <u>harf - e</u>   ziyād <u>zad</u> 'Parviz spoke much.'
           'Parviz' 'word-a.1.'   'much' 'hit'

Such examples seem to serve as counterevidence for the hypothesis that
the PV is an inseparable unit belonging to the category V. However, a

critical examination of such examples reveals that separable PV's must be viewed to be VP's in their base form, containing PV's whose objects have been deleted in certain predictable environments. With the deletion of the second of the two morphologically identical NP's, the sequence becomes structurally similar to the PV. Thus (50) in which the PV sequence <u>harf</u> <u>zadan</u> 'speak' (literally 'word' + 'hit') seems to be interrupted by a modifier, can be shown to be underlyingly (51), from which the second occurence of <u>harf</u> is deleted under morphological identity to produce (50).

> (51) parviz   harf̄   -   e   ziyād <u>harf</u> zad.
>   'Parviz 'word -   a.l.   'much''word' 'hit'
>   spoke

The fact that a sequence of morphologically identical NP's does not appear in sentences of Persian suggests that there must be some device that blocks an underlying VP containing two identical nouns from appearing on the surface, most likely by deleting the second of two identical nouns. Thus one can say <u>soāl porsidan</u> 'ask a question,' where <u>soāl</u> is the direct object of <u>porsidan</u>, a simple verb, but not *<u>soāl soāl kardan</u>, where <u>porsidan</u> has been replaced by its PV counterpart <u>soāl kardan</u>.

More evidence can be brought for the hypothesis that the underlying constituent structure of "separable" PV's is that of a VP containing a direct object morphologically identical to the noun within the periphrastic sequence. The grammaticality of phrases such as <u>soāl-rā kard</u> 'asked the question' with a definite direct object marker-<u>rā</u> inserted after the direct object NP within the PV <u>soāl kardan</u> 'ask' (literally 'question' + 'do'), indicates that such an occurence of <u>soāl</u> plays the role of a direct object, rather than the noun of the PV.

> (52) parviz soāl   -   rā   kard   'Parviz asked the question.'
>   'Parviz''question-d.a.c.m.' 'did'

Also the sequence <u>soāl-rā kard</u> cannot take a direct object of its own.

The position of the indirect object in sentences of the language constitutes another piece of evidence for the hypothesis that the seemingly "separable" PV's should be considered VP's with deleted nouns. The relative linear order between the direct and indirect object in Persian is stylistically conditioned, such that both orderings are possible:

> (53) parviz ketāb - rā   be-man   dād. 'Parviz gave the
>   'Parviz' 'book-d.a.c.m.' 'to-me'   'gave'   book to me.'

(54) parviz be-man   ketāb - rā   dād. 'Parviz gave the book to me.'
      'Parviz''to-me' 'book - d.a.c.m.' 'gave'

An indirect object can interrupt a PV sequence of the type illustrated by
(50) and (52), to produce alternate structures such as (57) and (58), but
cannot interrupt PV's in general, as (55) and (56) indicate.

(55) parviz be - man [_{PV}harf zad] 'Parviz spoke to me.'
      'Parviz' 'to   me'   'word' 'hit'

(56) *parviz [_{PV}harf be - man zad]   'Parviz spoke to me'
      'Parviz' 'word' 'to - me' 'hit'

(57) parviz   be - man [_{VP} harf - e ziyād zad] 'Parviz spoke much
      'Parviz' 'to - me'   'word-a.l. 'much' 'hit'   to me'

(58) parviz [_{VP} harf - e ziyād be - man zad] 'Parviz spoke much
      'Parviz' 'word-a.l.''much''to - me' 'hit'   to me'

The variation in (57) and (58) can be explained in terms of free word
order between direct and indirect objects in Persian, if the surface
sequence harf-e ziyād zad is analyzed to be an underlying VP.

5.2 The PV is syntactically distinct also from the grammatical category
V, for unlike the V, it does not participate in the native non-verbal
inflectional or derivational patterns. PV's behave differently from
simple verbs with respect to the non-verbal derivatives they possess.
Certain patterns of adjectival and nominal derivatives of verbs in Persian
are of the structure INF. + i-adjectives such as:

(59) [_{ADJ}xordan - i   ]   'edible'
     'to eat - adjectival suffix'
                        (a.s.)

and INF + i + hā - nouns such as:

(60) [_{IP} xordan - i hā   ]   'edible things'
     'to eat' - a.s. plural morpheme'

From the following table it can be seen that only simple verbs have
derivatives of the INF. -i and INF. -i - hā patterns: PV's are not
amenable to such patterns. Even the PV's guš kardan 'hear' and harf
zadan   'speak,' which are paraphrasable by šenidan and goftan
respectively--both being simple verbs that have the above mentioned adjectival
and nominal derivatives--do not possess such derivatives.

TABLE I

VERB AMENABILITY TO NON-VERBAL DERIVATIVE FORMATION

INFINITIVE	VERB TYPE	ADJ[INF-i] PATTERN	P[INF -- i - hā] PATTERN
xordan 'to eat'	simple	xordan - i 'edible'	xordan - i - hā 'edible things'
šenidan 'to hear'	simple	šenidan - i 'audible'	šenidan - i hā 'audible things'
guš kardan 'ear' + 'to do' 'to hear'	periphrastic	*guš kardan - i unintelligible meaning	*guš kardan - i - hā unintelligible meaning
goftan 'to speak'	simple	goftan - i 'speakable'	goftan - i - hā 'sayings'
harf zadan 'word' + 'to hit' 'to speak'	periphrastic	*harf zadan - i unintelligible meaning	*harf zadan - i - hā unintelligible meaning

6.   In conclusion, it seems that PV formation in Persian got great impetus
with the increasing number of Arabic verbs that had to be nativized.   Be-
cause of the difference between the structures of the host and target
languages, the direct borrowing of verbs from Arabic into the Persian
declension patterns would have greatly violated the Arabic structure.
PV formation appears to have been the ideal compromise between the two
structures, for it kept the Arabic component indeclineable.   At first PV
formation may have been a conscious learned process, but its productiveness
increased with usage to the extent that today PV's are used more often
than simple V's in the colloquial language.   The data in Table I corrobor-
ates with the fact that the PV's are not completely productive as simple
V's in some ways, showing that the PV's have not yet   been completely
integrated into the verbal system of Persian.

   It seems that one cannot give conclusive explanations for this general
trend towards verbal prolixity in the Persian language.   The speculations
provided above, however, suggest directions for further research.

FOOTNOTES

*I would like to thank Hans Hock, Robert Lees, Paul Wexler, and Ladislav Zgusta for reading and commenting on an earlier version of this paper.

[1]The following is a list of the productive periphrastic Aux's in Persian, complementing those listed in the text:

saxtan	'create'
nemudan	'show'
farmudan	'order'
dāstan	'have'
didan	'see'
gereftan	'get'
gozāstan	'put'
bāxtan	'lose'
bordan	'take'
bastan	'tie'
āvordan	'bring'
raftan	'go'
āmadan	'come'
xāstan	'want'
kesidan	'pull'
duxtan	'sew'
gardidan	'turn'
gardāndan	'make turn'
resāndan	'make reach'
goftan	'say'
kandan	'pick'
xandan	'read'
gastan	'search'
yāftan	'find'
oftādan	'fall'

[2]Likewise a compound verb sətāhnā kərnā 'make praise' made up of the native verbal noun sərahnā and the AUX kərnā 'do' to express the same transitive notion, as in (i):

(i) mɛ̃   jān - kī   sərahnā   kər-rəha-hū   'I praise John.'
    'I'   'John - of' 'praise'   'do'

also takes a genitival IP jān-kī. One explanation may be that the Persian PV taərif kardan 'relate' (literally 'relate' + 'do') may very well have served as a syntactic model for the Perso-Arabic compound verb in Hindi tārif kərnā. The Persian PV taərif kardan means 'telling (good things) about somebody/something'; it does not take an accusative IP, but an oblique one. It appears that "nativized" expressions such as tārif kərnā, in turn serve as models for the Sanskritic or native calques such as sərahnā kərnā, such that the latter expressions require the same type of IP's as their borrowed paraphrases. Further research, however, needs to be done to investigate the original uncalqued Hindi compound verbs in an effort to discover the distribution patterns of the types of IP's they can take.

[3]The AUX of the PV construction should be properly differentiated from the so-called "regular" auxiliaries of the language, which generally precede another verbal component in a morphologically complex verb. An example of a regular auxiliary in Persian is xāstan 'want', used to indicate futurity.

    (i)   mixām   be-rav-am   'I want to go.'
        'want-1Sg)' 'subjunctive-go-1Sg.'
                          marker

[4](16) may have been formed after sentences with the pattern of (i):

    (i)   yō   narəm   frazābaoðaηhəm   snaϑəm   jainti
        'who''somebody(acc.)' 'Fr.(acc.)' - 'blow(acc)' 'hits'
        'Who gives somebody the Fr.-blow.'

where the verb in (i) equivalent to 'hit a blow' is clearly a 'figuraт etymologia' of the type 'dream a dream.'

[5]To assume, on the other hand, that the PV construction is essentially devised in order to borrow into the language verbs in which it is deficient would imply that simple verbs cannot be derived from loan words. This is not strictly true. There are Arabic loan verbal noun stems from which simple Persian verbs are formed, though such verbs are rare in the language. Examples are raqsidan 'dance', fahmidan 'comprehend', and talabidan 'request', which follow the inflectional patterns of the Persian simple verbs. However, even these verbs are supplemented by their corresponding periphrastic forms raqs kardan (literally 'dance' + 'do'), fahm dāstan (literally 'comprehension' + 'have') and talaв kardan (literally 'request' + 'do'), which use the Arabic verbal noun as the non-verbal component. The rarity of simple verbs such as raqsidan is not surprising, considering the differences in the declension patterns between the Persian and Arabic verbal patterns. PV's do less violence to the structure of the foreign loan. The same phenomenon is true about Perso-Arabic loans in Hindi, which follow the Hindi simple verb declension patterns. Some examples are gərmānā 'warm up,' from the Persian adjective garm 'hot', nərmānā 'to soften' from the Persian adjective narm 'soft', and jamnā 'solidify' from the Perso-Arabic noun jam? 'together', used to form the Persian PV jam? kardan 'gather.'

[6]For the average speaker of Persian, hesāb kardan and šemārdan are semantically equivalent--both meaning 'count', but the average so-called "learned" Persian detects a fine difference, namely that the former also has the sense of 'total up'.

[7]Hindi PV's with English as the source of the non-verbal component, such as fon kərnā 'telephone' (literally 'telephone' + 'do'), expect kərnā 'expect' (literally 'expect' + 'do'), and feyl kərnā 'fail' (literally 'fail' + 'do') introduced into the language over the past century do not seem to be calques on Perso-Arabic compounds, but rather productive unitary verbs with regular syntactic properties. Like their Persian counterparts, such PV's, if transitive in meaning, take accusative NP's, and not genetival NP's.

156

See, for example:

(i) mɛ̃   jān-- - ko   ʎfon   kər ˙ ˙- -rəha̅ hū 'I telephone John.'
     'I' 'John-a.a.c.m.''telephone' 'do'

(ii) mɛ̃. jān - ko   expect   kər-rəha-hū   'I expect John.'
     'I' 'John-a.a.c.m.''expect'   'do'

REFERENCES

DUCHESNE-GUILLEMIN, J.   1936.   Les composés de l'Avesta.   Paris.

JONES, W.   1969.   A Grammar of the Persian Language.   Menston.

KENT, R. G.   1953.   Old Persian Grammar, Texts, Lexicon.   New Haven.

LAMPTON, A.   1957.   Grammar of the Persian Language.   Cambridge.

LAVIAN, M.   1971.   Persian Grammar.   Tel-Aviv.

LAZARD, G.   1937.   Grammaire Persan Contemporain, Paris.

MILANIAN, H.   1969.   Les monèmes et les procédes de passage en persan
        de la catégorie verbale à la catégorie nominale et vice-versa.
        Word.

NYBERG, H. S.   1974.   A Manual of Pahlavi, Part II.   Weisbaden.

RASTORGUEVA, V.   1964.   A Short Sketch of the Grammar of Persian.   IJAL.

REICHELT, H.   1909.   Awestisches Elementarbuch.   Heidelberg.

SHEINTUCH, G.   1973.   Periphrastic Verbs in Persian.   M.A. Thesis.
        Tel-Aviv.

TELEGDI, S.   1950.   Sur les périphrases verbales dites" verbes composés"
        en persan.   Etudes Orientales à la Mémoire de Paul Hirschler.
        Budapest.

_____.   1950-51.   Nature et fonction des périphrases verbales dites
        "verbes composés" en persan.   Acta Orientalia.

WEXLER, P.   1971.   Some Observations of Structure in Language Contact.
        Symbolae in honorem Georgii Y. Shevelov.   Munich.

_____.   1974.   The Cartography of Unspoken Languages of Culture
        and Lithurgy (Reflections on the Diffusion of Arabic and
        Hebrew).   Orbia.

SOME PROBLEMS CONCERNING THE ORIGIN OF THE LATVIAN BROKEN TONE

Aleks Steinbergs

1.1: Latvian is one of the two remaining languages in the Baltic branch of Balto-Slavic. Unlike Lithuanian, the other member of the group, Latvian differentiates <u>stress</u> accent from <u>pitch</u> accent. Latvian word stress is predictable and almost always occurs on the initial syllable (exceptions are few and can be exhaustively described[1]). However, tones or pitch accents[2] are found (only and always) on all long syllables. By these I mean long vowels, diphthongs, and short vowels that are followed by a tautosyllabic resonant (vowel + resonant + consonant). The following examples with level pitch (indicated by a circumflex accent) illustrate these three environments:

$\bar{V}$	$V_i V_j$	VRC
pîle 'duck'	laîva 'boat'	tilts 'bridge'

The standard literary language and the tonal dialect on which it is based has three distinct pitch accents, while the two other major tonal dialects have only two. The phonemic difference between the three pitch accents in those areas which have them can be clearly seen in minimal triplets like the following one:

luôgs [luôks]	luôks	luoks
'window'	'green onion'	'frog, bow'

1.2: The standard literary language is derived from the Central Latvian dialect (Latv. <u>vidusdialekts</u>) which is spoken in central areas of the provinces of Vidzeme and Zemgale. The three pitch accents distinguished in this dialect are the level, falling, and broken tones. The <u>level</u>, prolonged, or sustained tone (Germ. <u>Dehnton</u>, Latv. <u>stieptā akcents</u>) has either a level pitch or a slightly rising pitch which

usually in words in isolation) throughout the syllable. Examples:

brãlis	brother	avuõts	spring	duñdurs	gadfly
dũmi	smoke	kauõls	bone	baĩts	white
bãrt	to scold	liẽls	big	spaĩva	feather

The _falling_ accent (Germ. _Fallton_, Latv. _kritosais akcents_) has
a very short rise and then a falling pitch throughout the syllable; it
is marked with a grave accent:

bãrda	beard	daìļš	beautiful	gùlta	bed
mèle	tongue	teìkt	to say	bàlss	voice
dzĩt	to drive	taùta	people, nation	cìrpt	to snip

The _broken_, interrupted, or glottal accent (Germ. _Brechton_, Latv.
lauztais akcents) is characterized by an initial rising pitch, then
optional glottal closure and a pitch fall--this tone is also often
characterized by laryngealization. The accent is marked with a caret.
Some examples are:

dzîve	life	daîkts	thing, tool	dzêltêns	yellow
rûgt	to ferment	mîers	peace	ârt	to plough
vêls	late	jâuns	young	dârbs	work

A comparison of the three major tonal dialects indicates that
Common Latvian probably had three distinctive pitch accents, rather than
two as in the West Latvian and Latgalian dialects; likewise it can be
demonstrated that in each of these latter dialects two different tones
fell together.

1.2.1: West Latvian is spoken in the province of Kurzeme (Courland),
and the western parts of Zemgale and Vidzeme. In most areas where West
Latvian is used, the two pitch accents which occur are the level and
broken tones. It happens that precisely those words which have falling

tone in the Central dialect have broken tone in this areas (cf. table 1).
This would seem to indicate that the falling accent and the broken accent
have fallen together. Furthermore, in the other areas of this dialect
region an intonation is used for the falling and broken tones which is
described as being halfway between falling and broken (Endzelīns 1951:49).
(Perhaps by this is meant a falling tone with laryngealization, but this
is only speculation on my part.)

1.2.2: High Latvian or Latgalian (Latv. latgaliesu or augšzemnieku
dialekts) is spoken in the extreme southeast of Zemgale, eastern Vidzeme,
and most of Latgale. In most areas of this region, the two pitch accents
used are the broken and falling tones. The falling tone occurs not only
in those words which have falling tone in the Central dialect but also in
words that have level tone (cf. table1). This would seem to indicate that
the falling and level tones have been collapsed in Latgalian. In a few
areas, instead of the falling tone, level tone occurs throughout (that is,
in words corresponding to both level and falling tone words of the Central
dialect). The tonal system of all the dialects can be described by a
rough schematic diagram, as in table 1.[5]

Central Latvian	West Latvian	Latgalian
level	level	falling [or level]
broken	broken [or broken-falling]	broken
falling		falling [= level]

Table 1: Intonational correspondences in both East and West dialects

It seems most likely that historically both West Latvian and Latgalian had three pitch accents; only such a system will satisfactorily account for the distribution of intonations in the three dialects, including the disagreement in these distributions: one dialect has collapsed the falling and broken accents, the other--the falling and level accents. In this case, the Central Latvian dialect must reflect the historically prior situation, and the other two dialects have diverged from it.

1.3: The development of the three original pitch accents from Proto-Baltic can be established by reference to the accents of Old Prussian (another member of the Baltic branch) and Lithuanian, and also to the accents of Slavic. Old Prussian is no longer spoken, but some manuscripts do provide an indication of what the accents were: in some words, diphthongs will consistently have a macron over the first vowel, while in others the same diphthongs will have it on the second vowel. Since it has been generally accepted that the macrons mark the high point of the syllable nucleus (Stang 1966:143), the first case $(\bar{V}V)$ would probably denote a falling pitch and the second $(V\bar{V})$ a rising pitch:[6]

falling	rising
āusins	pogaūt
lāiku	aīnan
ēit	geīwans

In general, syllables with falling pitch in Old Prussian correspond in cognate words to syllables with falling pitch in Latvian; those with Prussian rising pitch correspond both to level pitch and to broken pitch in Latvian:

	Old Prussian	Latvian	
	āusins	àuss	ear[7]
falling	rānkan	rùoka	hand
	ālgas	àlga	wage, pay
	piānkts	pìeci	five

	Old Prussian			Latvian	
	iouson		level	jūsu	your (pl.)
	kaūlins			kaŭls	bone
rising					
	boūt		broken	bût	to be
	aīnan			viêns	one
	geīwan			dzîvs	alive

This same correspondence is seen between Latvian and the Slavic
languages. The Slavic rising (acute) accent appears as stress on the
second syllable of original V+l/r+C formations in Russian and is indicated
by acute or grave marks in Slovenian and Serbo-Croatian; the falling
accent (circumflex) is shown by stress on the first syllable of V+l/r+C
formations in Russian and by a circumflex accent in Slovenian and Serbo-
Croatian:

	Ser.-Cr.	Russian	Slov.		Latvian	
falling (circ.)	brâdu	bórodu		falling	bârda	beard
	drûg		drûg		draŭgs	friend
	rûku				rûoka	hand
	vûk	volk, vólka	vôlk		vìlks	wolf
rising (acute)	vjȅtar			level	vȩ̂tra	storm
	vrȁna	voróna	vrána		vârna	crow
	mȁti		máti		mâte	mother
	pȕn				pilns	full
	brȅza	beréza	bréza		bȩ̂rzs	birch
	lȋpa		lípa		lȋpa	linden
	bjȅgati	bežát'	bȇžati	broken	bȩ̂gt	to flee
	jȁrina				jȩ̂re	lamb
	jȅsti		jȇsti		ȩ̂st	to eat
	jȁbuko				âbuols	apple
	žȉla	žíla	žȋla		dzîsla	vein

Lithuanian, on the other hand, does not correspond in precisely this same way. Unlike Latvian, but similar to Old Prussian and the Slavic languages, Lithuanian has only two distinctive pitch accents; these are the rising tone (marked by a circumflex accent) and the falling tone (marked with an acute). The falling accent of Lithuanian corresponds in Latvian cognates to the level or to the broken tone, while the rising accent corresponds to a falling pitch in Latvian:

	Lithuanian		Latvian	
	tìltas[0]		tìlts	bridge
	ménuo	level	mēness	moon
	bárti		bãrt	to scold
	žìrnis		zir̃nis	pea
falling	kélmas		cel̂ms	stump
	bégti	broken	bêgt	to flee
	vóvere		vâvere	squirrel
	gardùs		gar̂ds	delicious
	prõtas		pràts	sense, reason
	kélias		cel̃š	road
rising	draũgas	falling	dràugs	friend
	lìeka		lìek	put(s) (3rd p.)
	pur̃vas		pùrvs	swamp

It would appear from all of these data that Proto-Baltic probably had only two pitch accents, as in Old Prussian and Lithuanian; the evidence of the two Slavic accents also points to this conclusion. For the purposes of this paper it may be assumed that the Proto-Baltic accents had the character that is retained in Old Prussian and partly in Latvian (but not in Lithuanian); namely a rising accent corresponding to the Slavic acute (rising) accent and a falling one corresponding to the Slavic circumflex (falling tone). Cognates show the following distribution:

Slavic	Old Prussian	Latvian	Lithuanian	Proto-Baltic
\\ acute (rising)	V V̄ rising	˜ level ^ broken	／ falling	V ᷉ rising
⌒ circumflex (falling)	V̄ V falling	＼ falling	˜ rising	V̄ V falling

Table 2: Balto-Slavic accentual correspondences

It would then seem that Latvian has independently developed a third accent (the broken tone) by splitting the Proto-Baltic rising accent.

It is the purpose of this paper to determine the exact manner in which this split took place. Since the Old Prussian materials are scarce and not always consistent, I will in the following use Lithuanian as the main comparison language.

2.1: Standard literary Lithuanian, unlike Latvian, has only one pitch accent per word, and the place of the pitch accent is also the place of the word stress. This difference can be clearly seen in a pair of words like the following: Latv. _mecitajs_ 'minister', Lith. _mókyuojas_ 'teacher'.

On the other hand, Latvian has as many pitch accents in a word as there are long syllables. Moreover, those accents remain constant through-out the paradigm of a single word; cf. the following examples:

	'guest'		'oak'	
nom.	cìemiņš	cìemiņi	uôzuõls	uôzuõli
gen.	cìemiņa	cìemiņu	uôzuõla	uôzuõlu
dat.	cìemiņam	cìemiņiẽm	uôzuõlam	uôzuõliẽm
acc.	cìemiņu	cìemiņus	uôzuõlu	uôzuõlus
loc.	cìemiņã	cìemiņõs	uôzuõlĩ	uôzuõlõ

This same effect cannot be seen in Lithuanian, since unstressed syllables cannot have any distinctive pitch. However, when the stress

shifts in the paradigm, different pitch accents <u>can</u> show up on different
syllables of a word. Moreover, the pitch accents which then appear are
contrastive (i.e. both types of accent can appear on any syllable) and, at
the same time, do remain constant for a given syllable in a given word.
Note the following sample paradigms:

	'rooster, cock'		'pupil'	
nom.	gaidỹs	gaidžiaĩ	mokinỹs	mokiniaĩ
gen.	gaĩdžio	gaidžiũ	mókinio	mokiniũ
dat.	gaĩdžiui	gaidžiáms	mókiniui	mokiniáms
acc.	gaĩdį	gaidžiùs	mókinį	mókinius
ins.	gaidžiù	gaidžiaĩs	mókiniu	mokiniaĩs
loc.	gaidyjè	gaidžiousè	mokinyjè	mokiniuosè

    This sort of phenomenon in Lithuanian indicates that historically
there may have been differentiation between the two types of accents even
in unstressed syllables; if this had not been so, one would expect either
phonologically conditioned occurrences of the different tones or else a
completely random distribution (instead of the consistent appearance of the
same tone on a given syllable of a word--as actually occurs).
    Kuryłowicz (1968:112) has claimed that Balto-Slavic has had tonal
distinctions <u>only</u> in accented syllables. However, the evidence of the
Lithuanian nominal paradigms given above goes against this claim. Moreover,
present-day standard Latvian distinguishes no less than three different
tones in unstressed syllables; some examples are: neàust 'to not weave' :
nešàut 'to not shoot' : neàust 'to not dawn'; tìcība 'faith': tìcîgs
'believing'; vȩ̀lȩ̂na 'sod': dzȩ̂ltȩ̂ns 'yellow', etc. In addition, not only
Latvian, but also some nonstandard dialects in the north of Lithuania
(eg. Salantai, Tverečius) have more than one tone on a word, and, thus,
make tonal distinctions even in unstressed syllables.[9]
    Finally, the operation of de Saussure's Law (DSL) in Lithuanian also
argues for tonal distinctions in unstressed syllables. Kuryłowicz has
argued that this rule did not operate in Lithuanian; however, in my opinion,
Stang (1966:130-9) has shown convincingly that Kuryłowicz's alternative

proposal cannot be considered plausibly established. DSL shifts stress from a circumflex accent vowel or short vowel to the following syllable if this had an acute accent:

$$\left\{ \begin{matrix} \tilde{\bar{V}} \\ \breve{V} \end{matrix} \right\} C \acute{V} \quad > \quad \left\{ \begin{matrix} \tilde{\bar{V}} \\ \breve{V} \end{matrix} \right\} C \tilde{\acute{V}}$$

	DSL				no DSL		
	3 p.	1 sg.			3 p.	1 sg.	
~V̄	gẽria	geriù	drink		léidžia	léidžiu	allow
	kẽlia	keliù	lift	V́	dúoda	dúodu	give
	eĩna	einù	go		bė́ga	bė́gu	run
V̆	pìna	pinù	plait		áuga	áugu	grow

It is unclear what the exact character of the Lithuanian accents was at the point at which this rule operated; for example, whether the distinction was between two different contour tones (falling vs. rising) or between level tones of different heights (high vs. low). Whatever their exact nature, the operation of this rule and the dialectal evidence given above would seem to indicate that at one time Lithuanian must have had more than one accent per word and that the two different kinds of accents were distinguished even in unstressed syllables.

2.2: If, as I suspect, the above situation was true for Common East Baltic in general, then this would also be congruent with the explanation generally given (Endzelīns 1922:23-8, Van Wijk 1952:37, Stang 1966:1-...) for the origin of the Latvian broken accent.

Those words which in Lithuanian have an acute (falling) root accent that alternates within the paradigm (accent class 3) correspond to words in Latvian which have a broken tone:

	Latvian	Lithuanian
gnat	uôds	úodas, uodaĩ (nom.pl.)
cover	vâks	vókas, vokaĩ "
clover	dâbuõls	dóbilas, dobilaĩ "
thing	daîkts	dáiktas, daiktaĩ "
cold	saĺts	šáltas (masc.), šaltà (fem.)
thin	tiêvs	tę́vas " , tęvà "
heart	sir̂ds	širdìs, šìrdi (acc.sg.)
sod	velên̂a	velėnà, velė́ną "
intestine	zar̂na	žarnà, žárną "
song	dziêsna	giesmė̃, gíesmą "

On the other hand, those Lithuanian words which have an immobile acute
accent on the root (that is, words in which the accent remains fixed on
the root syllable throughout the paradigm; accent class 1) correspond in
Latvian to words with level tone:

	Latvian	Lithuanian
mother	mãte	mótė
barn	klẽts	klė́tis
pea	zir̃nis	žìrnis
sea	jũra	júra
man	vĩrs	výras
milk	piẽns	píenas
bush	krũms	krúmas
clay	mãls	mólis
last year	pẽrn	pérnai
to nurse, raise	aũklêt	áuklėti

2.5: On the basis of this sort of evidence the usual explanation
given for the occurrence of the broken tone (this was first proposed by
J. Endzelīns in 1899) is that there was a uniform retraction of stress
onto the initial syllable[10] and that those acute (rising toned) syllables

which received stress by this retraction became broken-toned:[11]

$$\underset{LH}{\widehat{{}_{\cdots}\bar{\mathfrak{s}}\ldots\mathfrak{s}}} \quad > \quad \underset{LHL}{{}_{\cdots}\overset{\times}{\bar{\mathfrak{s}}}\ldots\mathfrak{s}}$$

Since the broken tone did not appear in words where the initial syllable seems (from cognates) to have been short or falling-toned, this would suggest that it was not merely a case of broken tone appearing whenever an initial syllable (regardless of its tone) became stressed, but that the accents were differentiated in the initial syllable even when it was unstressed. Examples:

	Latvian		Lithuanian
short	dzenis	woodpecker	genýs
	ass	sharp	ašìs
	zinât	to know	žinóti
falling	svèiks	healthy	sveîkas
	clèst	to suffer	kęsti
	bàlss	voice	baĩsas

That this sort of stress-influenced tone change is not unusual in Baltic is apparent from the situation in the Žemaitish (Samogitian) dialect of Lithuanian. Žemaitish has a <u>rising-falling</u> intonation that corresponds to the standard Lithuanian rising accent, and a <u>broken</u> tone corresponding to the standard Lithuanian falling tone. In this dialect, the stress was retracted from a circumflex accented syllable or a short vowel to the initial syllable (but a secondary stress was left behind) and the newly-stressed syllable got a new intonation. If the previously unstressed syllable was acute, the new intonation is rising (marked by an acute accent), but if it was circumflex, then a 'middle' tone (marked by ⌢) appears:

	Žemaitish		Standard Lithuanian
middle tone	gaĩdĩs	circumflex	gaidýs, gaĩdį (acc. sg.)
	dⁱoubiê	(rising)	duotê, dúobę

	Zemaitish		Standard Lithuanian
rising tone	árklĩs	acute	arklỹs, árkli̇̃ (acc. sg.)
	víezĩs	(falling)	vėžỹs, vẽži̇̃ "

3.0: As far as it goes, Endzelīns' proposal is probably correct, as it can account for a large number of forms. However, there are several problems with it.

3.1: First of all, in order for this solution to be both correct and comprehensive, it should be true not only that most movable acute Lithuanian accents correspond to Latvian broken ones, but also that the large majority of Latvian broken accents have corresponding mobile acute accents in Lithuanian. This, however, is not the case; there is a large group of words in Latvian which have broken tones where one would expect the level tone, since their Lithuanian cognates have immobile acute accent (accent class 1); cf. the following examples:

	Latvian	Lithuanian
raft	pluôsts	plúostas
tin	alva	álvas
butt	piêts	péntis
belt	juôsta	júosta
oven	krâsns	krósnis
minister	mâcîtâjs	mókytojas, mokìntojas
weight	sluôgs	slúogas
stag	briêdis	bríedis
elk	alnis	élnis
marten	caûne	kiáunė
skin	âda	óda
wall	siêna	síena
berry	uôga	úoga

From a count I made of a fairly random sample of acute-accented words in Lithuanian, I discovered the following statistics: of 79 mobile acute nouns and adjectives (accent class 3), 66 correspond to broken accent nouns

in Latvian, while the other 13 have level tone correspondences. This, of course, is more or less what is expected, since some disagreements can always be anticipated. However, of 72 <u>immobile</u> acutes (accent class 1) only 39 correspond to level accents in Latvian, while 33 correspond to broken accents. Such an almost equal division means that, in this case, the exceptions cannot be lightly dismissed.

To explain this lack of regular correspondence (without abandoning Endzelīns' proposal) one can assume either that for some reason a group of level-toned words became broken-toned in Latvian or else that a group of Lithuanian mobile acutes changed accent classes and became immobile (probably after the stress retraction in Latvian had taken place).

Although I cannot a priori rule out the first possibility, there does not seem to be any reason why such a tone change might have occurred in Latvian. In the first place, I can see no phonetic difference between the two groups of words; words both regularly and irregularly corresponding to the immobile class seem to have syllables that contain the same vocalic elements:

	regular:		irregular:
Latvian	Lithuanian	Latvian	Lithuanian
tìlts	tìltas	smìlga	smìlga
kurpe	kùrpė	mùlķis	mìlkis
nīts	nýtis	dzīsla	gýsla
māte	nótė	āda	óda
nuõma	núoma	pluõsts	plóstas
liẽpa	líepa	sviẽsts	svíestas
saũle	sáulė	...	kiáuné

There also does not seem to be any difference in the Latvian or the syllable involved; both groups contain syllables which are similarly constructed (in terms of the types of consonants which end the syllable):

	regular:		irregular:
māte	nótė	slùõta	šlúota
mẽness	mėnuo	...	síena

til̂ts	tìltas		dzèltềns	geltónas
stir̃na	stìrna		al̂nis	álnis

Finally, there does not seem to be any semantic difference between the
two groups of words; both contain fairly common everyday words of similar
categories; cf. the following Latvian examples:

	regular:		irregular:
shoe	kur̃pe	belt	juôsta
flour	mil̂ti	berry	uôga
crow	vãrna	quail	paîpala
linden	liêpa	elm	vîksna
bone	kaûls	sinew	dzîsla
leg	kãja	root, sole	pềda

There is one interesting morphological distribution of these two
classes of nouns: in four of the Latvian noun declension classes the corr-
espondences to the Lithuanian immobile acutes are generally the regular
expected level pitch words, but in the other three classes (the -a-, -ja-,
and -ā- stems) approximately half or more of the correspondences are to
the broken tone. Furthermore, in the -ā- stem nouns there are almost twice
as many nouns (of those corresponding to Lithuanian immobile acutes) with
broken tone as with level tone. This major discrepancy in the -ā- stems might
be explainable by analogy if there were, in general, mosre words in this
class corresponding to mobile acutes than to immobile ones. If most of the
forms in this class corresponded to Lithuanian mobiles, then one might be
able to say that the minority (level-toned = Lith. immobiles) had changed
accent by analogy to the majority of forms (broken-toned = Lith. mobiles).
Exactly the opposite is the case: of 27 nouns in this class corresponding
to Lithuanian acutes (not an exhaustive computation), 19 correspond to
immobiles and only 8 to the mobiles. Any proposed analogy would have to be
a change by the major class in the direction of the minor class; this
seems unlikely.

In conclusion, it appears that there is neither phonological, semantic

nor morphological evidence for an accent change in the groups of words in question within Latvian.

The alternative possibility can be considered next; namely, whether there is any reason to suspect a change in accent class by the <u>Lithuanian</u> cognates of these unexpectedly broken-toned words. One possible explanation might be that these words have succumbed to a general tendency to regular- ize the position of the accent in Lithuanian. In an attempt to columnarize the place of the accent, a large number of Lithuanian former mobile acutes could perhaps have developed immobile root accents, thus becoming identical with accent class 1 nouns. In such a case, the switch from one accent class to another might have been variable and random, in which case no conditioning would exist.

As it turns out, there <u>are</u> a number of words in present-day Lithuanian which vacillate between accent classes 1 and 3; for example--<u>īrklas</u> 'rudder', <u>klíauda/kliaudà</u> 'defect', <u>kótas</u> 'handle', <u>lãlỹs/lãlis</u> 'hern-owl', <u>síetas</u> 'sieve', <u>žárna/žarnà</u> 'intestine'.[12] These words do not differ from non- vacillating words in any way; thus, the difference is, in fact, random. The mere existence of such variation between classes 1 and 3 seems to ind- icate that there has been some sort of general realignment whereby mobile acutes have been transferred to the immobile class. In this case the vacil- lating forms are a reflection of the historical change in progress.

In addition, there is a historical case of accent class shift of the type that I am proposing, that took place early in the history of Balto- Slavic, namely Hirt's Law.[13] This law claims that a number of forms which were cognate to Indo-European oxytones (ending stress) shifted accent and became barytones (root stress). Hirt's Law applied only to forms which had a long syllable in the root. Some examples showing its operation in Baltic are given below:

	Latvian	Lithuanian	Greek	Sanskrit
bone	kaũls	káulas (1)	kaulós	
man	vĩrs	výras (1)		vīrá-s
mother	mãte	mótė (1)		mātā́
ash tree	uôsis	úosis (1)	oxeraī	

smoke	dūmi	dúmai (1)	thūnós	dhūmá-s
bread/ heel of loaf	duõna	dúona (1)		dhãnā́-s
bridge	tìlts	tìltas (1)		tīrthá-m
jointure	jūts	jáutis (1)		yūtí-s

Thus, this accent shift created some new immobile forms which would not otherwise be expected.

However, this law alone cannot account for all cases of immobile accent, as there are a number of forms cognate to Indo-European long stem oxytones which do not have immobile acute accent in Lithuanian:

	Latvian	Lithuanian	Greek	Sanskrit
full	pìlns	pìlnas (3)		pūrṇá-s
long	ìlgs	ìlgas (3)		dīrghá-s
fast	ãtrs	ãtrùs (4)		ātár
son-in -law	znuõts	žéntas (3)		jñātí-s
thin	tiêvs	tę́vas (3)	tanaós	
one	viêns	víenas (3)	oinós	
foot	pêda	pėdà (3)	pédon	
god	dìevs	diẽvas (4)	theós	devā́
wave	vìlnis	vilnìs (4)		ūrmí
slow	lẽns	lénas (3)	lēdeĩn	
winter	zìema	žiemà (4)	kheimṓn	
sweet	saĩds	saldùs (3)	hēdús	svādú

Hirt's Law also appears to have a random lexical distribution; as well it shows that there is a tendency in Baltic towards immobile accent. It may be that this same tendency is exhibited in those forms which are presently in Lithuanian accent class 1 but correspond to Latvian broken tone.

3.2: The major difficulties with Endzelīns' explanation of the broken tone come from cases where it occurs in non-initial syllables. For example, the broken tone appears on all locative plural endings in Latvian, even in

those cases where no accent ever appears in Lithuanian (i.e. in words
which correspond to Lithuanian forms with immobile stem accent):

	Latvian	Lithuanian
in pots	puôduôs	púoduose
in wagons	ratuôs	rãtuose
on/in feet	kãjâs	kójose
in rivers	upês	ûpése
in markets	tìrguôs	tur̃guose
in months	mẽnešuôs	ménesyse

Endzelīns accounts for this by claiming that all locative plural
endings have acquired broken accent by analogy with those forms that
developed the broken tone by regular phonetic rule; these would be words
like vagâs 'in furrows', Lith. vagosè, and galvâs 'in heads, Lith. galvosè
(Endzelīns 1951:42, 1923:27). This implies that the historical Latvian for
for a word like vagâs must have been something like *vagósâ. Stang (1966:
142-3) speculates that this must have involved a previous stress retraction--

$$*v \, a \, g \, \bar{a} \, s \, \hat{e} \quad > \quad *v \, a \, g \, \bar{\acute{a}} \, s \, (e)$$
$$\quad \text{LH} \qquad\qquad\qquad \text{LHL}$$

which brought about the broken tone on the inflectional ending, before
the general stress retraction to the initial syllable:

$$*v \, a \, g \, \bar{\acute{a}} \, s \, (e) \qquad\qquad v \, \acute{a} \, g \, \bar{a} \, s$$
$$\quad \text{LHL} \qquad\qquad\qquad \text{LHL}$$

This stress retraction to the penultimate syllable does not seem reason-
able if one considers that historically in Latvian all short vowels (except
u) were lost in final position (Endzelīns 1971:5-6). In such a case the
accent might very well shift from the (disappearing) final vowel to the
preceding syllable.

It might also be possible to say that any acute syllable before the
stressed one became broken when the stress shifted over it to the initial

syllable; that is, it is not necessary to say that only those acutes were converted to broken accents which themselves actually were stressed--the mere shift itself might have been enough. While this is possible if one prefers an explanation that has to do with speakers' perceptions of the effect of a stress shift, the phonetically more plausible explanation seems to me to be the one which Stang suggests. I can see no phonetic reason why a stress shift should cause a tone change on a syllable which was neither originally nor ultimately stressed; on the other hand, it does seem plausible that stress imposed on a previously unstressed syllable (which has a pitch accent) would cause some change in pitch, particularly since stress is normally a complex of intensity, duration, and pitch. In connection with this, there is, of course, the additional evidence that stress retraction had precisely such an effect in Žemaitish (see section 2.3 above).

The preliminary retraction that Stang proposes would have to take the form of a rule that pulls the stress back by one syllable. Although there is no other directly substantiating evidence for such an accent retraction in Latvian, its possible connection with final short vowel loss in Latvian and the fact that a similar retraction has taken place in Žemaitish suggest that Stang's explanation is not unlikely.

3.3: Another difficulty with Endzelīns' hypothesis is caused by verbs of two or more syllables which contain a vowel suffix (for example, aûdzinât 'to raise' vs. aûgt 'to grow'; braûkât 'to drive about' vs. braûkt 'to drive, ride'; sêdêt 'to be sitting' vs. sêst 'to sit down', etc.). These are also called 'characterized' verbs. In these verbs (and in their nominal derivatives in -šana and -tãjs/-tãja) the final vowel of the verb stem has a broken tone in the infinitive, future stem, supine, and in the future active and preterite active participles. Examples of characterized verb forms with broken tone on the stem vowels -ā-, -ī-, -ē-, and -uo- are given below:

	infin.	1.sg.fut.	supine	pres.act.ppl.	pres.act.ppl.
furrow	vagât	vagâšu	vagâtu	vagâdams	vagâts
do	darît	darîšu	darîtu	darîdams	darîts
sleep	gulêt	gulêšu	gulêtu	gulêdams	gulêts
roll	ripuôt	ripuôšu	ripuôtu	ripuôdams	ripuôts

Endzelīns (1951:43, 1923:29) suggests that the broken accent in
these forms is the result of generalization from those forms which devel-
oped the broken tone by regular phonetic rule (but he does not hazard a
guess as to which these regularly derived forms might be [14]). In the first
place, for this explanation to be plausible, it would have to be the case
that all verb stem vowels were originally acute; otherwise it would have to
be an incredibly strong generalization to affect original circumflex accents
as well. As it happens, this is actually the case; it is a general fact that
in Lithuanian, if the accent falls on the verbal stem suffix, it is invar-
iably acute (Leskien 1919:203). Some examples are:

mokéti	to know	keliáuti	to travel
sapnúoti	to dream	drebéti	to tremble
gyvénti	to live	sėdéti	to sit
turéti	to have	matýti	to see
žinóti	to know	bėgióti	to run
dalýti	to divide	galvóti	to think

In addition, Endzelīns' suggestion assumes that those forms which
had broken tone by regular development were in some way the stronger or
more unmarked forms, and this would have to be substantiated by additional
independent evidence to be considered a valid explanation.

Apart from this, there is an interesting phonological distribution of
the broken and level tones on the verbal suffixes: the broken tone occurs
only when followed by a consonant (t, d, s, or š), while in most cases the
level tone is followed by j and a vowel.[15] The only exceptions are the
first and second persons plural (present tense) and the present passive
participle of -ā- stems;eg. zinām 'we know', zināt 'you (pl.) know', zināms
'known, knowable'; dziedām 'we are singing', dziedāt 'you (pl.) are sing-
ing', dziedāms 'singable', etc. If we temporarily ignore the exceptions
in the -ā- stems, an interesting phonological distribution comes to light.
The j that follows the verbal suffix can by synchronically derived as a
glide which appears epenthetically between vowels of different morphemes;
in any case, when this j is eliminated it can be seen that level tone

appears on a vowel preceding another vowel (therefore, before a hiatus),
while broken tone appears on a vowel followed by a consonant (no hiatus):

	no hiatus:		hiatus:
infinitive	mazgât "to wash"	1.sg.pres.	mazgã(j)u
1.sg.fut.	mazgâšu	1.sg.pret.	mazgã(j)u
fut.act.ppl.	mazgâšuôt	2.pl.imper.	mazgã(j)iît
supine	mazgâtu	pres.act.gerund	mazgã(j)uôt
pres.act.ppl.	mazgâdams	pres.pass.ppl.	mazgã(j)oms

This observation leads me to suspect that, in at least this particular
case, stress shift was not in any way concerned with the occurrence of the
broken tone. Nevertheless, it <u>does</u> seem likely that this phonological alter-
nation between the tones could only have been established after broken tone
appeared (for example, in words corresponding to mobile acutes in Lithuanian,
as Endzelīns suggests).

The exceptions cited above, namely the first and second persons
plural and the present passive participle of the -ā- stems, belong to what is
called the third conjugation (Bērziņa-Baltiņa 1946:140-4). In this conjug-
ation, the verb roots are augmented by a vowel suffix in all tenses except
the present. Some examples are:

	'guard'	'divide'	'hold'
infinitive	sargât	dalît	turêt
1.sg.pret.	sargãju	dalîju	turêju
1.sg.fut.	sargâšu	dalîšu	turêšu
conditional	sargâtu	dalîtu	turêtu
1.sg.pres.	sargu	dalu	turu
1.pl.pres.	sargãm	dalãm	turam
	(-ā- stem)	(-ā- stem)	(-i- stem)

If the verbal stem vowel were the same as the thematic vowel which
appears in the present stem, one would expect *dalîm, not <u>dalãm</u> for the
first person plural. Thus, it appears that the -ā- stem forms in this

conjugation have retained level accent on the $\bar{a}$ of the first and second persons plural and present passive participle because this is the thematic vowel denoting the verb stem class (historically) and not the vowel suffix of the characterized verb. If we assume that the observation made above (level tone before a vowel, broken tone before a consonant) applies only to verb stem vowels, these forms are not exceptional.

3.4 Another problem arises with derivational suffixes. There are an approximately equal number of suffixes[16] with level and broken tone:

-uôts	-ãjs/-ãja
-âks	-(i)niêks/-(i)niêce
-îgs	-iêtis/-iête
-êks	-tãjc/-tãja
-uôklis	-ẽns
-âklis	-iêns
-îklis/-îkla	-ẽts
-âkl(i)s/-âkle	-îtis/-îte
-âds	-îba
-aîns/-aîna	-ẽns
-uôn(i)s	-ãjs
	-iêne
	-îns (dialectal)

When compared with corresponding suffixes in Lithuanian, it appears that only the suffixes with level tone in Latvian (and not all of these) correspond regularly according to Endzelīns' rule. Some examples of the regular correspondences between level pitch suffixes and Lithuanian immobile acute suffixes are given below:

Latvian		Lithuanian	
-ãjs/-ãja		-ė́jas/-ė́ja (1)	
aûdẽjs	weaver	audė́jas (1)	weaver
-îba		-ýbė/-ýba (1)	
dzîvîba	life	gyvýbė (1)	life
ganîbas	pasture	ganýba (1)	pasture

-ī̃tis/-ī̃te   -ýtis/-ýtė (1)
brãlī́tis   little brother   brolýtis (1)   little brother
saũlī́te   sun (dimin.)   saulýtė (1)   sun (dimin.)

-iẽne   -íenė (1)
karaliẽne   queen   karalíenė (1)   queen

-ãns   -ónas (1)
dzȩ̃ĩtãns   yellow   geltónas (1)   yellow

Other Lithuanian suffixes which correspond regularly[17] are -ónas (1) =
Latv. -ãns; -ójas (1) = Latv. -ãjs; and -étas/-éta (1) = Latv. -ẽ̃ts.

The exceptions to Endzelīns' rule fall into three categories; first,
those suffixes with broken tone (instead of falling tone) which correspond
to Lithuanian circumflex-accented suffixes:

Latvian   Lithuanian

-aîns/-aîna   -aĩnis/-aĩnė (2) (or (4))
miglaîns   foggy   ašakaĩnis (2)   having fish bones

-ȇklis   -ẽklis/-ẽkle/-ẽklai (2)
biêdȇklis   scarecrow   turẽklai (2)   banister

-âkl(i)s/-âkle   -õklis/-õklė (2)
vazâklis   vagrant   žvejõklis (2)   fisherman

-uôklis   -uõklis/-uõklė (2)
dzîvuôklis   apartment   rijuõklis (2)   glutton

-îklis/-îkla   -ỹklis/-ỹklas/-ỹkla/-ỹklė (2)
ganîkla   pasture   baidỹklė (2)   scarecrow

The second group consists of forms that also correspond to Lithuanian
circumflex-accented suffixes but that have level accent in Latvian:

-iẽtis/-iẽte   -iẽtis/-iẽtė (2)
latgaliẽtis person from   kauniẽtis (2)   person from
             Latgale   Kaunas

-ãns   -õnas (2)

lĩkãns   bent-over man   valdõnas (2)   ruler

-ĩns (dialectal)   -ỹnas (2)

kùocĩns   little tree   langỹnas (2)   small window

According to Stang (1966:164) it is likely that Lithuanian derivat-
ional suffixes with a circumflex accent on the penultimate (long) vowel
(as in both groups above) have acquired this circumflex accent by a late
rule. The evidence for this claim comes partly from the accent alternations
which can occur in such suffixes. For example, the suffix -ýbė (1) can also
have circumflex accent: -ỹbė (2); thus, in addition to gražýbė (1) 'beauty',
occasionally also gražỹbė (2) occurs. As well, there are a number of cases
of metatony of the suffixes; that is, there are a number of derivational
suffixes which have identical <u>segmental</u> phonological form but different
pitch accents (and morphological and/or semantic functions). Some of these
are -õnas (2) : -ónas (1); -õkas (2): -ókas (1); -ỹnas (2) : -ýnas (1);
and -ũnė (2) : -únė (1).

Even if Stang's hypothesis is correct, he does not directly state
what the accent could have been before the 'circumflexation' rule applied.
However, we can infer from forms like -õnas (2) : -ónas (1), etc. (and
assume that such a rule would change tone but not mobility), that the
Lithuanian suffixes of the two exceptional groups cited above probably had
immobile acute accent. In this case, the Latvian suffixes of the second
group would correspond correctly, but those of the first group would still
be a problem.

Stang (1966:143) suggests that suffixes of the form -ê̂klis, -î̂klis,

-ãklis, and -uôklis in the first group might have developed broken accent under the influence of the verbs from which the nominal forms are derived. This is not unlikely, especially since in most cases the initial vowel of the suffix in the derived word is the same as the verb stem suffix vowel:

dzîvuôt	to live	dzîvuôklis	apartment
biêdêt	to frighten	biêdêklis	scarecrow
kavêt	to delay	kavêklis	hindrance
vazât	to drag about	vazâklis	vagabond
ganît	to herd	ganîkla	pasture
àrdît	to unravel, spread out	àrdîklis	two pronged hay fork

Even in those cases where the vowel of the verb stem and the initial vowel of the suffix are not the same (eg. daũzîtiês (reflexive) 'to romp, gad about' : daũzêklis 'vagabond'; šũpuôt 'to rock, swing' : šũpâkles 'swing'), it is still the case that the vowel of the verb stem has broken accent. This, of course, is a result of the alternation discussed in section 3.3, whereby broken tone developed on verb stem vowels before consonants. The fact that the verb stem vowel has probably influenced the vowel of the nominal suffix to take on broken tone would seem to indicate a general progressive spread of usage of the broken tone (that is, from acute mobile roots to characterized verb stem vowels to derivational suffix vowels).

Finally, the third group of exceptions contains suffixes with broken accent in Latvian that correspond to immobile acute Lithuanian forms:

Latvian		Lithuanian	
-îgs/-îga		-ìngas/-ìnga (1)	
laîmîgs	happy	laimìngas (1)	happy
-uôts/-uôta		-úotas/-úota (1)	
raguôts	horned	ragúotas (1)	horned
-âds		-ódas (1)	
viênâds	the same	vienódas (1)	the same
-âks		-ókas (1)	
labâks	better	gerókas (1)	moderately good
-ê̦ks		-ékas (1)	
pe̦lê̦ks	gray	pelékas (1)	gray

These exceptions are similar to the ones like puôds, âda, sluôta, etc.
(discussed in section 3.1) in that one would expect level tone (by Endzel-
īns' rule), since these forms correspond to Lithuanian immobile acutes.
At present, I have no evidence suggesting accent class shift on the part
of the Lithuanian forms; however, it appears that some of the Latvian
suffixes in this group (and also in the first group of exceptions) may
originally have had falling tone. It is an interesting fact about Latvian
derivational suffixes that there appear to be no such suffixes which unam-
biguously have falling tone--all have alternate forms with broken tone:

-àks ⁓ -âks		-àklis	-âklis
-ìgs ⁓ -îgs		-ìklis	-îklis
-è̦ks ⁓ -ê̦ks			

This suggests a tendency towards maintaining only two accents (level and
broken) in the derivational suffixes, whereby the falling tone is being
eliminated in favour of the broken tone. This is yet another expression of
what seems to me to be an overall tendency toward a secondary generalization
of broken tone. It may be that, since the broken tone is apparently the
most recently derived of the pitch accents, it has acquired the role of the

<u>productive</u> accent (this is reminiscent of Kuryłowicz's fourth law of analogy, which states that new formations tend to take on the primary function of a word). In any event, the broken tone does seem to be unexpectedly prevalent. There are additional cases of non-initial broken tone that I have not attempted to deal with; however, these also include cases that do not follow regularly from Endzelīns' formulation. Further research is needed to determine the source of broken tone in these cases.

The foregoing investigation leads to a number of conclusions about the broken tone in Latvian. First, the hypothesis proposed by Endzelīns requires considerable revision. While his proposal appears essentially correct for a large number of cases of broken tone on root initial syllables, there is a large set of nouns and adjectives with broken tone which it does not account for. Kuryłowicz (1958:340) suggested that these exceptions were probably the result of some changes in Lithuanian rather than Latvian. This investigation has more specifically shown that an accent shift could not have taken place in Latvian, but that there is definited evidence for a tendency towards immobilization of accent in Lithuanian which would account for these exceptions.

Further, it appears that when Endzelīns' hypothesis is applied to cases of broken tone on non-initial syllables, even more discrepancies occur. His proposal is workable for cases of broken tone on the locative plural endings only if one posits an additional accent retraction rule. Furthermore, neithe the verbal stem suffixes nor the derivational suffixes appear to have acquired broken tone by Endzelīns' rule but by completely unrelated phonological and morphological processes.

Finally, there appears to have been a tendency in Latvian to secondarily generalize the broken tone. Once this tone originated, it seems to have been favoured over both the level and falling tones, perhaps as a result of a tendency to give primary use to a newly developed marker.

FOOTNOTES

[1] Second syllable stress occurs (i) in superlatives: vislābākais; (ii) on numerals with pus- : pusdĭvi 'one and a half', and (iii) in certain adverbial compounds: arvĭen 'always', nekŭr 'nowhere', gandrĭz 'almost', nekăd 'never', etc. For a fuller description see Bērziņa-Baltiņa 1946:32 of Endzelīns 1923:18.

[2] I will use these two terms indiscriminately to refer to the same phenomenon.

[3] One exception to this is if there is a VRC sequence where the C is the -s or -š of the nominative singular masculine. Historically this suffix was -as pr -is, and a new accent was not introduced after the loss of the vowel.

[4] The boundaries of the tonal dialects and the divisions based on segmental phonology are not the same, but they do follow the same general division into west, central, and eastern dialects. Whenever a term is used designating one of the three areas, it refers to the tonal dialect, not to the segmental dialect area.

[5] For a more detailed discussion of the dialectal differences see Endzelīns 1951:39-41 and Laua 1969:111.

[6] In Old Prussian short vowels plus tautosyllabic resonants were apparently also able to carry tone; thus V̄RC denotes a falling tone in this environment.

[7] Unless otherwise indicated, all of the English glosses give only the meanings of the Latvian words.

[8] A grave accent on a short vowel followed by a tautosyllabic resonant is used to indicate a falling tone in this environment.

[9] For examples see the discussion of Žemaitish tone shift in section 2.3 below.

[10] This may have been as a result of the influence of the surrounding and substratum Finno-Ugric peoples--the Estonians and Livonians (Ludvigs Vīks, personal communication).

[11] LH = rising tone, LHL = broken tone. Kiparsky 1973:833 states that the broken tone "clearly originates as a falling tone". This is definitely incorrect, as the correspondences given earlier in section 1.3 clearly show. It is easy to be misled by the correlation between Latvian broken tone and Lithuanian falling tone, but it would appear that the falling character of Lithuanian acute accent is an independent development within the language.

[12] These forms are taken from Kuryłowicz 1958:339-49 and the two dictionaries by the Lietuvos T.S.R. Mokslų Akademija, (1972) and (1973).

[13] I would like to thank Lee Becker for bringing this 'law' to my notice. Its effect in Lithuanian is mentioned in Kiparsky 1973:828, fn. 21, and discussed in detail in Illič-Svityč 1963:78-86.

[14] This is difficult to ascertain, since all verbs in Lithuanian are immobile (except for the accent shift caused by de Saussure's Law); thus, there are no examples of final accent in any of these forms.

[15] Endzelīns (1938:21, 1951:43) merely describes the level tone as occurring before _j_ which is either still present or was present historically.

[16] I have not included a number of suffixes because their pitch accent is uncertain; these are: -uojs, -ins, -uns, -ins, -eks, -ats, -its, and -aits.

[17] I have not included those suffixes for which the accentuation is uncertain, such as -uonis (3a) or (3b), and -ūnas (1) or (2), or for which the accentuation varies regularly, such as -ininkas/-ininke ((1) if the root is (1) or (2), but (2) if the root is (3) or (4)), or on which the accent never appears, such as -tojas/-toja.

REFERENCES

Bērziņa-Baltiņa, V. 1946. Latviešu valodas gramatika. Stuttgart: Baltijas Apgāds.

Endzelīns, Jānis. 1923. Lettische Grammatik. Heidelberg: Carl Winter Universitätsbuchhandlung.

—————. 1938. Latviešu valodas skaņas un formas. Rīga: Latvijas universitāte.

—————. 1951. Latviešu valodas gramatika. Rīga: Latvijas valsts izdevniecība.

—————. 1971. Jānis Endzelīns' comparative phonology and morphology of the Baltic languages. Transl. by William R. Schmalstieg and Benjamiņš Jēgers. The Hague: Mouton.

Illič-Svityč, Vladimir M. 1963. Imennaja akcentuacija v bal'tijskom i slavjanskom. Moskva: Izdatel'stvo Akademii Nauk S.S.R.

Kiparsky, Paul. 1973. The inflectional accent in Indo-European. Lg. 49. 794-849.

Kuryłowicz, Jerzy. 1958. L'accentuation des langues indo-européennes. 2nd. ed. Wrocław-Kraków.

—————. 1968. Indogermanische Grammatik. Band II. Heidelberg: Carl Winter Universitätsverlag.

Laua, A. 1969. Latviešu literārās valodas fonētika. Rīga: Zvaigzne.

Leskien, A. 1919. Litauisches Lesebuch. Heidelberg: Carl Winter Universitätsbuchhandlung.

Lietuvos T.S.R. Mokslų Akademija, Lietuvių Kalbos ir Literatūros Institutas. 1972. Dabartines lietuviu kalbos žodynas. Vilnius: Leidykla "Mintis".

——————. 1975. Lietuviu kalbos žodynas, v. 1-9. Vilnius: "Mintis" Leidykla.

Stang, Christian S. 1966. Vergleichende Grammatik der baltischen Sprachen. Oslo: Universitetsforlaget.

Uijk, N. van. 1958. Die baltischen und slavischen Akzent- und Intonationssysteme. 2nd. ed. 'S-Gravenhage: Mouton.

A NOTE ON DIPHTHONGIZATION

Dieter Wanner

0.   Within Romance linguistics the diphthongs present a problem of
long standing both for what concerns the cause of their existence and the
way in which they developed in their phonetic reality. Particularly the dif-
ference between the falling diphthongs (e.g. OFr. éy from VLt. é) and the
rising ones (e.g. OFr. yé from VLt. ę [1]) has caused extensive debate (cf.
Spore 1972). This note attempts to formulate the basic issue at stake in
the Romance phenomenon of diphthongization and to consider them in the light
of various interesting approaches to diphthongization put forward in the
recent literature.

I.   Three different attempts at elucidating diphthongization --
Labov, Yaeger and Steiner (1972) (henceforth LYS); Andersen (1972); Stampe
(1972) -- all appeared in the same year. A brief summary of these studies
will make it possible to appreciate their importance with respect to the
Romance problem.
        In LYS the emphasis is put on the empirical foundations of the
surface phonetic description of diphthongs in connection with their socio-
linguistic embedding (variation, variable conditioning, and apparent time
evolution within the various dimensions in one speech community). The en-
suing framework hypothesizes general tendencies for vowels understood as
being locked into a system subject to chainshifts which involves both mo-
nophthongs and diphthongs. So-called peripheral vowels ({+peripheral} is
one manifestation of {+tense} , i.e. extreme vocalic articulation in terms
of extreme F1 and F2 values compared with 'normal' articulations of the same
vowels) are distinguished from non-peripheral (=lax) ones. Within vocalic
subsystems[2] (monophthongs, diphthongs of various kinds), three basic ten-
dencies are identified as relevant in chainshifts:

(1) (a) peripheral vowels rise (e.g. <u>e:</u> > <u>i:</u>)

    (b) non-peripheral vowels fall in upgliding diphthongs (e.g. <u>iy</u> > <u>ey</u> > <u>ɛy</u>)

    (c) back vowels become fronted (e.g. <u>u</u> > <u>ü</u> > <u>i</u>)   (p. 106/7)

Three additional principles define vocalic behavior across different subsystems in situations of chainshift:

(2) (a) tense/long vowels may develop inglides while rising from mid to high (cf. (1a); e.g. <u>e:</u> > <u>i:ə</u>)

    (b) high ingliding vowels become monophthongized (excluding the ones from (2a)), non-low tense monophthongs become upgliding diphthongs (e.g. <u>i:ə</u> > <u>i:</u> ; <u>e:</u> > <u>e(:)y</u>)

    (c) maximally open upgliding diphthongs may become tense/long monophthongs (e.g. <u>a(:)y</u> > <u>ɛ:</u> or <u>a:</u>)   (p. 228)

The crucial aspect of this framework describing vocalic space is the fact that the monophthongal and the diphthongal manifestations of vowels are lumped together into one coherent system subject to chainshifts within each subsystem or across such subsystems (cf. p.219; Fig.5-1,2). As the principles in (2) state there is mobility between ingliding, upgliding, and monophthongal forms of vowels; the rising diphthongs are also comprised in the picture, but, as their absence from (2) indicates, they remain marginal in LYS.

Andersen (1972) sees diphthongization as a much broader phenomenon, including not just the commonly accepted vowel-plus-glide manifestations, but all intrasegmental variation affecting syllabics and syllable slopes. He defines diphthongization as intrasegmental variation of an otherwise distinctive feature ranging over its two polar values in such a way that the unmarked value of this feature in the given context is always first (23), and the marked value follows in second position within the heterogeneous segment. This primary (phonetic) diphthongization may be followed by phonological polarization such that the originally single segment changes to a sequence of segments. Concentrating on the vocalic diphthongs involving a glide, the intrasegmental distribution principle of 'unmarked - marked', plus an auxiliary principle identifying the more sonorous element of the diphthongal se-

quence as the normal center of syllabic intensity ('intensity shift', 24),
assure a particular linear order for the glide in relation to the vowel.
For a phonetic diphthongization yielding the segmental diphthongs ⌐ei⌐,
⌐ie⌐, ⌐eę⌐ , ⌐ęe⌐ this system predicts the respective surface interpretations
{ei}· {ie} ; {eę} > {ię} ; {ęe} > {ęi} .

        The framework of Natural Phonology (cf. Stampe 1969) organizes vo-
wels basically in the space formed by the axes of sonority (high - mid - low
vowels; i.e. i̱ - e̱ - ę̱: or u̱ - ö̱ - oe) and of color (palatal-labial; four
chromatic types are defined: (1) achromatic = non-palatal, non-labial; e.g.
i̱ , ɣ , ʌ ; (2) monochromatic = labial; e.g. u̱, o̱, ǫ ; (3) monochromatic =
palatal; e.g. i̱, e̱, ę̱ ; (4) bichromatic = palatal and labial; e.g. ü̱, ö̱, oe).
The fundamental tendencies of vowels in this space are described by innate
processes such as raising (preferably affecting chromatic vowels; e.g. ę̱i >
e̱i > i̱i[3]), lowering (affecting achromatic vowels; e.g. i̱i > ʌi > ai),
bleaching (affecting lax vowels preferentially; e.g. i̱i > i̱i , o̱u > ʌu),
and a number of other such processes (cf. Miller 1972). Circumscribed by
these natural tendencies of monophthongal vowels the phenomenon of context-
free diphthongization is described by Stampe by the formulation in (3):

(3) Diphthongization[4]

$$
\left\{ \begin{array}{cc} \text{chromatic} & \text{!high} \\ V & \text{!tense} \end{array} \right\} \quad \rightarrow \quad \{\text{-tense}\} \quad \{\text{-syl}\}
$$

i.e., the higher and tenser a chromatic vowel, the more likely it is that
such a syllabic segment may split up into a lax syllabic phase followed by
a non-syllabic segment. The primary effect of this diphthongization is the
sequential polarization of sonority vs. color characteristics of the source
monophthong. Some such diphthongizations include e.g. e: > e̱i , i: > i̱i ,
o: > o̱u , u: > u̱u , etc. The non-syllabic segment will keep its optimum
shape of a glide for accentuating color, whereas the syllabic segment will
follow the path of normal vowels in terms of potential bleaching, lowering,
and other such processes (cf. the illustrations under these headings above).
In the Great Vowel Shift of English, Stampe (1972:583) postulates evolu-
tionary chains such as the one in (4):

(4) i: > ii > ei > ʌi > ai

    involving the steps diphthongization > lowering > bleaching >
    lowering

    These three approaches outlined above are motivated by largely dif-
ferent underlying questions, and they describe only partially overlapping
data. In particular, they differ in their account of the characteristics of
the different types of vocalic diphthongs: Only LYS distinguish clearly
between ingliding, upgliding, and rising diphthongs, whereas in Stampe (1972)
only upgliding diphthongs are mentioned; Andersen (1972) treats again all
three types, but he assigns totally different underlying causes to ingli-
ding vs. upgliding and rising diphthongs[5]. To what extent then can these
approaches offer insight into the Romance problem of upgliding vs. rising
diphthongs? For the purpose of discussing this question, it will be useful
to introduce here the necessary basic data from the history of the Romance
languages.

    II.   From the Vulgar Latin vowel system[6] (which is at the basis
of most Romance languages: cf. (5)), characterized by three vocalic heights
with one front and one back series, the two chromatic low vowels, stressed
ę and ǫ, underwent generally diphthongization to yę́ and wǫ́ respectively at
an early time (arguably starting not later than between III and V century
AD; cf. Spore 1972:306-24). The relevant language-specific conditions for
the application of this diphthongization rule are given in (6).

(5) VLt. stressed vowels   / i e ę a ǫ o u /
    Diphthongization: ę́ >   yę́ ; ǫ́ > wǫ́

(6) Conditions for Diphthongization
    (a) everywhere under stress (e.g. Castilian)
    (b) in open syllable under stress (e.g. French, Italian)
    (c) before high vowel (segment) under stress (e.g. Southern Italian)

The examples in (7) illustrate the different possibilities with typified
forms. .

(7) (a) ę́, ǫ́ in open syllable before non-high final vowel:

   VLt. péde   > Cast. p{yé}; It. p{yę́}de; Fr. p{yé}: SIt. p{ę́}de

   VLt. rǫ́ta   > Cast. r{vé}da; It. r{wǫ́}ta: (OFr. c{wę́}r from VLt. *cǫ́re);
               SIt. r{ǫ́}ta

   (b) ę́, ǫ́ in open syllable before high vowel[7]:

   VLt. bǫ́nu > Cast. b{vé}no· It. b{vǫ́}no SIt. b{vó}nu, b{ú}nu

   (c) ę́. ǫ́ in checked syllable before non-high final vowel:

   VLt. fę́sta > Cast. f{yé}sta; It. f{ę́}sta: Fr. f{ę́}te SIt. f{ę́}sta

   VLt. grǫ́ssa > Cast. gr{wé}sa; It. gr{ǫ́}ssa; Fr. gr{ǫ́}sse: SIt. gr{ǫ́}ssa

   (d) ę́, ǫ́ in checked syllable before high vowel:

   VLt. vę́ntu > Cast. v{yé}nto; It. v{ę́}nto; SIt. v{yę́}ntu,v{í}ntu

   VLt. grǫ́ssu > Cast. gr{wé}so; It. gr{ǫ́}sso· Fr. gr{ó}s SIt. gr{wó}ssu,
               gr{ú}ssu

The environmental conditions in (6a-c) are widely different since they refer to syllable type (cf. (6b)), to phonetic content of contextual segments (cf. (6c)), and to general absence of segmental regulatory environ- ments (cf. (6a)). In addition, in languages characterized by environmental restrictions of type (6a) or (6b), a segmental environment typical of umlaut i.e. a following high segment y , prevents diphthongization of ę́ and ǫ́. These were apparently raised to e and o respectively. removing them from the scope of the (later) diphthongization rule. Thus the umlauting environment operates both as a trigger for diphthongization (in languages of type (6c)), and as a prohibitive condition in other languages (cf. (8)).

(8)   VLt. fǫ́lya > Cast. h{ó}ja. not * h{wé}ja
                  OProv. f{wę́}lha, not *f{ǫ́}lha in certain dialects[8]

The important aspect of this diphthongization is that whatever the language- particular situation, if there was diphthongization of ę́, ǫ́, it is generally not possible to document or even reasonably reconstruct a primitive stage where the result of the initial diphthongization would have been an ingli- ding or an upgliding diphthong: thus it must be assumed that these cases started out already as rising diphthongs.

   A smaller number of Romance languages (a subset of those which un-

derwent the diphthongization of $\acute{\rm e}$, $\acute{\rm o}$) knew a second, later round of diph-
thongizations affecting the mid vowels $\underline{\rm e}$, $\underline{\rm o}$, less frequently $\underline{\rm a}$, rarely $\underline{\rm i}$,
$\underline{\rm u}$.[9] The first results here show invariably upgliding diphthongs ($\underline{\rm e}$ > $\underline{\rm ei}$,
$\underline{\rm o}$ > $\underline{\rm ou}$). The environmental condition is uniform in that this diphthongi-
zation happens in open syllable under stress as in (9).

(9)   VLt.   véla   > OFr.   v{éy}le   >   v{óy}le
       VLt.   amóre > OFr.   am{ów}r
       VLt.   páne   > OFr.   p{áy}n

The crucial question is whether this primordial difference between rising
and upgliding diphthongal results is significant, i.e. why there are (al-
most) no cases of $\acute{\rm e}$ > $\acute{\underline{\rm e}}\underline{\rm y}$ and/or $\acute{\rm e}$ > $\underline{\rm y}\acute{\rm e}$. Or must it be attributed to chance
that the results look as they do in Romance?

III.   Within Romance linguistics, F. Schürr developed an inter-
pretation of this problem in a series of articles and monographs.[10] He ar-
gues that the difference between the ascending and the descending diphthongs
(rising vs. upgliding) is highly significant: As demonstrated by the uni-
form environment of the open syllable for the falling diphthongs, only
this situation can be regarded a 'spontaneous' diphthongization not trig-
gered by any directly identifiable segmental context (taking syllable le-
vel information such as stress to be non-segmental). The reason for this
spontaneous diphthongization is to be sought in the attested lengthening of
stressed vowels in open syllable. On the other hand, the ascending diphthongs
from $\acute{\rm e}$, $\acute{\rm o}$ are claimed to be the result of segmental environmental induction,
namely by the following high vowel as in (6c) (either Cl.Lt. $-\bar{\rm i}$ or $-$u or
else $\underline{\rm y}$).But for Schürr all diphthongization of $\underline{\rm e}$, $\underline{\rm o}$ in Romance started out as
a type (6c) umlauting diphthongization[11] with subsequent heavy restructu-
ring of the environment to yield in addition to some preserved specimens
of umlaut diphthongization (such as part of the Southern Italian dialects)
also the more widespread generalized diphthongizations (6a) and (6b) (e.g.
Spanish and Italian, respectively). The phonetic function, and thus the ori-
gin, of the breaking of the vowel into a rising diphthong would be the anti-
cipation of the high articulation of the (usually) final vowel across one

syllable into the initial phase of the stressed syllable, actually a type
of glide insertion process resulting from a persistent slip of the tongue
(cf. Fromkin 1971). Schürr's two crucial claims then are that umlaut must
yield a rising diphthong (if the result is a diphthong at all), and that
spontaneous diphthongization is always falling (presumably upgliding or in-
gliding).

Fitting Schürr's account of Romance diphthongization into either
the framework of Natural Phonology or of LYS leads to the recognition that
there is general agreement as to the spontaneous/natural diphthongization:
It is due to lengthening/tensing/peripherality, and it leads to upgliding
diphthongs, at least for the mid vowels under discussion here (cf. (3) and
(2c) above). For the Romance ascending diphthongs the provisions of Natural
Phonology are (not yet) sufficient if it should be the case that this umlaut
diphthongization of ẹ, ǫ represents a universally valid tendency (=natural
process) for vowels; in the absence of any compelling evidence it might be
better to assume that we are dealing with an idiosyncratic aspect of the Ro-
mance situation, a non-natural rule of unknown origin: In this way it would
be comprehensible why this change affects exclusively low chromatic vowels
(and not {!high} ones as postulated in (3)), and why it yields the reverse
order for the syllabic and the non-syllabic elements in the resulting diph-
thong. LYS are not able to offer much more help either: The subsystem of ri-
sing diphthongs is claimed to be connected to the one of ingliding vowels
(cf. Fig.5-1,2 and corresponding discussion 226-8), but the supporting data
are taken from Romance and are consequently not independently convincing
(226). For LYS the speculative origin of yẹ́ from ẹ̄ might be as in (10):

(10)   ẹ̄:   > (?) ẹ̄:ə > é:ə > í:ə > (?) yé

by ingliding, raising of peripheral vowels, syllabicity adjustment
Whatever the justification of this chain of changes in general (the same
hypothetical evolution has some currency in Romance linguistics, cf. Alar-
cos Llorach 1968:222-4; cf. also the mentioned variation in the Southern
Italian results in (7)) this type of evolution cannot be accepted as cor-
rect for all those Romance languages which preserved the original distinction
between ẹ́ and ẹ̄, ǫ and ǭ even in the diphthongs: Italian shows {yẹ́} and

{wǫ́}, not *{yé} and *{wó}. Clearly an explanation or even adequate description is lacking. On the other hand, for what concerns Natural Phonology, it is important to take into consideration that this framework is able to make correct predictions as to the evolution of the syllabic segment not only of upgliding diphthongs (for which it is adapted) but also for rising ones (which it does not recognize otherwise): coloring, raising, lowering, bleaching can be transposed from the 'natural history' of one type of vocalic subsystem (in the sense of LYS) to another. Thus in Castilian, the diphthongization of ę́, ǫ́ results in yé and wé; but the result wé is not immediate. Older stages of Castilian, and still modern phases of surrounding dialects (cf. Menéndez Pidal 1950:121-39,144-52), show the alternate manifestations wó, wá, wǫ́, sometimes even in free variation. Beside yé there is dialectally also yá attested, however not *yó. These alternate forms can be understood as the result of an evolution ę > yę > yʌ > ya by the processes of diphthongization, bleaching, and lowering. In a parallel way the back series would consist in this chain: ǫ > wǫ > wʌ > wa or we by the processes of diphthongization, bleaching, and lowering or coloring: we > wö by color assimilation (?) (cf. Stampe 1972 and Miller 1972, 1973 for similar evolutionary chains concerning falling diphthongs). Thus the validity of he predictions about the evolution of the syllabic elements in diphthongs does not depend in this framework on the linear arrangement of the vowel and the glide elements. For LYS the single subsystems are more autonomous in terms of being subject to different particular processes, i.e. in their interpretation a falling diphthong, consisting of V G, and a rising one, G V, usually do not exhibit the same evolutionary behavior for what concerns the vowel; rather the subsystem difference is more crucial (cf. LYS 1972:219-28). Yet the same range of surfacé variation in the manifestations of rising diphthongs can be described in the LYS approach as in Stampe's. In LYS the evolution of wo to we would be understood more as a chainshift (wo > wá > wa > wae > wę > we) consisting of non-peripheral lowering followed by peripheral raising of the syllabic element (cf. their pattern 1; Fig.4-1) according to the principle (1c) that back vowels get fronted. This same principle also accounts for the non-attested result *yo from ę : front vowels do not get backed without specific circumstances. So for both Natural Pho-

nology and LYS the major problem is the unsolved origin of the rising diph-
thongs of Romance, and the fact that these diphthongizations do not consti-
tute generally a fragment of a larger, coherent chainshift involving vowels.

Andersen's account presents another problem with respect to the Ro-
mance data. For any diphthongization it must first be determined which dis-
tinctive feature is at the basis of the phonetic polarization. Consider the
specifications for e and ę as Andersen (1972) would present them:[12]

(11)　　e :　　{+vocalic; +tns· -dif; -comp· -grv; -flat}

　　　　ę :　　{+vocalic; +tns; -dif· +comp; -grv· -flat}

The resulting phonetic diphthongs include thus all of the manifestations
shown in (12).

(12) (a) Possible segmental diphthongs[13] from VLt. /é/ consisting in the
phonetic diphthongization of:

{+vocalic}	→	{+voc} {-voc}	⸢eɤ⸣
{+tense}	→	{+tns} {-tns}	⸢eə⸣
{-diffuse}	→	{+dif} {-dif}	⸢ie⸣
{-compact}	→	{+com} {-com}	⸢ęe⸣
{-grave}	→	{-grv} {+grv}	⸢eɣ⸣
{-flat}	→	{-flt} {+flt}	⸢eö⸣

(b) Possible segmental diphthongs from VLt. /ę́/ consisting in the
phonetic diphthongization of:

{+vocalic}	→	{+voc} {-voc}	⸢ęę⸣
{+tense}	→	{+tns} {-tns}	⸢ęə⸣
{-diffuse}	→	{-dif} {+dif}	⸢ęi⸣
{+compact}	→	{+com} {-com}	⸢ęe⸣
{-grave}	→	{-grv} {+grv}	⸢ęʌ⸣
{-flat}	→	{-flt} {+flt}	⸢ęoe⸣

These results are not encouraging, since the only forms which could phone-
tically be interpreted to yield ey for the upgliding and ye/yę for the ri-
sing diphthongs of Romance are the diffuseness polarization of /e/ > {ie}
and the diffuseness or compactness diphthongizations of /ę/ > {ęe} > {ęi}.
But for Romance the situation should be reversed so that /ę/ yields the

rising and /e/ the upgliding diphthong! Possibly this is due to an imperfec-
tion in the feature system employed; consider e.g. the consequence of repla-
cing the feature {±vocalic} with {±syllabic}. A phonetic diphthongization
along this axis will naturally yield the series of upgliding diphthongs
i > ii > iy ; e > ee > ey ; ę > ęę > ęe > ęy . On the assumption of a diffe-
rent markedness status of syllabicity the diphthongization of /ę/ could even
yield the rising diphthong yę : ę > ęę > ęe > yę . However the problems
with this account of diphthongs are numerous: The validity of the feature
system, the correctness of the markedness distribution, and the indetermi-
nacy as to which distinctive feature produces an actual diphthong (cf the
diffuseness and compactness diphthongizations in (12b)) -- all three of these
independently hypothetical components of phonological structure are simulta-
neously open to criticism. Thus it will not be possible to come to any co-
herent conclusion about diphthongization due to the number of uncontrolled
covariables.[14] The one feature where Andersen's account seems to be more
motivated than either Stampe's or LYS's is that Andersen is not forced to
treat diphthongization as a fragment of a chainshift in the vocalic space:
This is exactly the situation of Romance ę́, ǫ́.

IV.   There are some interesting data bearing on the issue of the
spontaneity/naturalness of rising vs. upgliding diphthongs in Romance. Straka
(1959) presents evidence that in French, Czech, and other languages the ef-
fect of (extreme) lengthening of vowels in open syllable is to break these
overlong (={!tense}) vowels in such a way as to produce an offglide which
consists in a raised articulation after {-low} vowels, i.e. producing an up-
gliding diphthong, and ·in a lowered articulation after {+low} vowels, i.e.
producing an ingliding diphthong; thus i:: > i:i > i:i ; e:: > e:e >
e:i ; but ę:: > ę:ae > ę:ɔ ; etc. All such diphthongs are falling (upgliding
or ingliding) as predicted by Schürr and stated by Stampe. Straka interprets
this situation to mean that diphthongization, if spontaneous, produces fal-
ling diphthongs· the difference between the upgliding and the ingliding re-
sults of {-low} vs. {+low} vowels is claimed to be the starting point for
the end result of rising diphthongs from the {+low} vowels. Straka thus pos-
tulates an intimate relationship between ingliding and rising diphthongs,

in the same way as LYS (cf. (2) above, and their Fig.5-1,2). An example of such spontaneous diphthongization producing ingliding manifestations for ẹ, ǫ is offered by Schürr (1918-19.II:50-3).

(13) Spontaneous diphthongization of ẹ, ǫ in Modern Romagnolo (SE corner of Po basin, Italy)

(a) /ẹ́/   Imola: frad{ẹ́:}l ,   burd{ẹ́:}l

           Faenza: frad{áe^ə}l ,   burd{áe^ə}l

           Ravenna: frad{ẹ́^ə}l ,   t{ẹ́^ə}ra   (countryside)

           Meldola: b{ẹ́:}l   or   b{ẹ́^ə}l ;   b{ẹ́:}la   or   b{ẹ̃ə}la

           Cesena: frad{áe}l ,   burd{áe}l ,   b{áe}l(a)

(b) /ǫ́/   Imola: k{ǫ́:}l ,   n{ǫ́:}ster

           Forlì: k{á:}l ,   n{á:}ster

           Imola: k{ǫ́:}l   or   k{ǫ́^ə}l ,   n{ǫ́:}ster   or   n{ǫ́^ə}ster

                                       (countryside)

For Schürr it is however clear that this type of diphthongization cannot lead to a rising diphthong (cf. Schürr 1918-19.II:1-180). But this claim cannot be upheld in the face of some other data from Southern France (dialect of Quérigut). This particular local dialect of Provençal described by Séguy (1954) shows spontaneous diphthongization of its vowels ẹ, ǫ under length and stress. The results vary on an intra-speaker and intra-item basis between a monophthong and a full rising diphthong. Consider the data in (14).

(14) Diphthongization in Quérigut (Provençal):[15]

(a) /ẹ́/   pikar:èl ,   kür:è ,   p:è   p.è   {ɥ:}

           pe:è ,   küre::è   {eẹ́:}

           sulyé::è ,   küré::è   {eẹ́:}

           (no examples)   {yẹ́:}

(b) /ǫ́/   k:òp ,   m.òrt ,   :òli   {ǫ́:}

           ratiso:òm ,   ak:o:òa   {oǫ́:}

           ratisó::òm ,   tró:òp   {oǫ́:}

           défw:òra ,   mw:òrt   {wǫ́:}

                                (Séguy 1954:309)

As a consequence it cannot be taken for granted any longer, following Straka (1959), that any spontaneous diphthongization of ẹ, ǫ must result in a fal-

ling (=ingliding) diphthong; the dialect of Quérigut offers a case where at least within the range of precision of impressionistic transcription, free variation between a long monophthong and a rising diphthong is documented. This constitutes evidence against Straka's interpretation of the lengthening effect on vowels as a universal in phonetic space: It may, or may not, be the case that low vowels produce ingliding diphthongs and non-low vowels yieldupgliding ones. The same data also destroy Schürr's universal claim that spontaneous diphthongization cannot yield a rising diphthong; on the other hand, the claim that rising diphthongs may be the result of umlaut is not affected.

In addition to the cases where ę breaks up into a diphthong of rising or upgliding character, it is also possible to document 'spontaneous' diphthongization of ę to an upgliding diphthong. This happened in the Francoprovençal dialect of Charmey (Fribourg, Switzerland) as reported by Gauchat (1905) and Hermann (1929). Gauchat noted for ę the realiztions ę , ęe , and ęy with the oldest speakers most consistently using the monophthong and the youngest ones the diphthong ęy (39-42). Hermann caught a slightly more advanced stage of this diphthongization with further elimination of the original monophthong; the ęy of Gauchat had in the meantime acquired a lowered variant aey (e.g. v{ę}t ∿v{ęe}t ∿ v{ęy}t ∿ v{aey}t 'il voit'; cf. Hermann 1929:211-2). On the back side, the ǫ́ in the already existing diphthong wǫ́ (e.g. pwǫ́rta) had developed between the study of Gauchat and the one by Hermann a frequent variant wáǫ in parallel to the slightly earlier evolution of ạ to aǫ (Gauchat 1905:42-7 ; Hermann 1929:208-10); thus a rising diphthong may further break in its syllabic part into an upgliding diphthong. The significant aspects are the fact that ę and ǫ can also yield .upgliding diphthongs in addition to rising and ingliding manifestations, and that ę and ǫ may diphthongize without any further vocalic changes taking place in their potential chainshift area of the vocalic subsystem.

V.   Not only is it the case that the type of diphthong resulting from a spontaneous diphthongization of ę, ǫ is unpredictable in terms of present knowledge about this problem, but it is also well known from the history and dialect variations of Romance languages that rising and ingliding diphthongs frequently substitute for each other over time and space. A typi-

cal case is the history of French; cf. (15).

(15) French diphthong evolution:

	VLt.		
ę̧́ > yę̧́	VLt.	pę́de >	p{yé}d
ǫ́ > wǫ́ > ... > wé > ... > ő , óe	VLt.	*cǫ́re >	c{óe}r
é > éy > ... > óy > ... > wę́ > wá	VLt.	véla >	v{wa}le
ó > ów > ... > éw > ... > ő , óe	VLt.	sólu >	s{óe}l
á > áȩ > ... > ę̧́ , é , (yé)	VLt.	pátre >	p{ę̧́}re

(cf. Pope 1952:§§ 503-56)

In the Italian dialects of the Marche, Abruzzi, Calabria, and Puglie we find frequently in parallel existence the rising diphthongs wǫ́, wę́ and the ingliding manifestations úǫ, úa, úo (Rohlfs 1949:§ 123; Schürr 1956:142). All these phenomena of extensive variability of diphthongal manifestations taken together lead to the recognition that any account of diphthongization must offer a coherent framework for permitting and constraining these crossovers from one vocalic subsystem to another, as it is attempted in the descriptive schemata shown in LYS (219-28). Yet their presentation cannot constitute an explanation of intraspeaker variation between e.g. monophthong and rising diphthong (Quérigut), rising and ingliding diphthong (Italian dialects), or monophthong and upgliding diphthong (Charmey). This intra-speaker variation, and the fact that the acoustic individuality of fullfledged rising vs. upgliding vs. ingliding diphthongs should be sufficient to prevent wrong identification by the listener, make any explanation based on surface reinterpretation in the language learning stage unattractive (alleged ambiguity of input leading to 'imperfect learning'). Rather this imprecision in the reproduction of diphthongs must be backed up by an output-oriented explanation of diphthongs as functionally unitary phenomena consisting of sequential • segments (following the line of Andersen's segmental diphthongs). Being unitary in their function (whatever the empirical correlate of this property may be) the diphthongs will equally well fulfill their role in any compatible surface form (rising, upgliding, ingliding, in addition to monophthongal), thus predicting that their surface manifestations could change rather frequently (an idea already expressed by Alarcos Llorach 1968:223). If according to Stampe (1972:581) diphthongs have a syllabic function where the se-

quential realization serves to reduce the complexity of the single segmental articulation by distributing the basic features of color and sonority over different segments, it will not matter a great deal whether the particular diphthong is realized as an upgliding or rising diphthong (e.g. e<u>u</u> or <u>we</u> in (15)), or whether the glide or the vowel represents the chromatic aspect (<u>we</u> and <u>wo</u> in Old Castilian, <u>wo</u> and <u>yo</u> for <u>o̩</u> in Chioggia, Italy; cf. Rohlfs 1949:§115), or whether the more closed or the more open element carries syllabicity (<u>wó̩</u> and <u>úo</u>, <u>úə</u> in Central and Southern Italian dialects). The underlying oneness of monophthongal and various diphthongal manifestations of a syllabic nucleus would also be adequate to make a needed distinction between glide insertion and deletion processes as opposed to true diphthongization and monophthongization. Such an explanation remains however a desideratum for future research.

Notes

[1]In the following, <u>e̩</u> designates a low front, <u>o̩</u> a low back rounded vowel; <u>y</u> and <u>i</u>, <u>w</u> and <u>u</u> are used interchangeably; <u>V</u> in general designates a glided non-syllabic segment; Ṿ stands for a slightly raised articulation of a given vowel; <u>a̠</u> is used for a velarized <u>a</u>; length is indicated by : after the affected segment (except for the transcriptions in (14) below). Frequently only the relevant diphthongal portion of an item is given in phonetic transcription, the remainder following established orthographic tradition. Note also that <u>ae</u> and <u>oe</u> represent monophthongs (palatalized <u>a</u> and a low front rounded vowel respectively). -- I would like to thank Hans Hock for valuable suggestions and comments on an earlier draft of this note. Responsibility for any shortcomings rests solely with the author.

[2]The relevant subsystems are given in LYS (1972:Fig.5-1,2). They are listed in extenso on p.220:

subsystem	symbol	example	tenseness distribution	
short vowel	V̂, V	ê, e	lax	--
long vowel	V:	i:ə	tense	--
ingliding diphthong	V(:)h	i:	tense	lax
upgliding diphthong	VG	ey, ei	lax	tense
rising diphthong	GV	ye̩(:)	lax	tense

[3]The examples for these processes are taken in this instance from diphthongal developments discussed in Stampe (1972) rather than from the monophthongal chains typically observed in language learning as discussed in Miller (1972). This choice is however not crucial.

[4]In this formalism {!f(x)} stands for 'more f(x)' as indicated in the interpretation following (3); cf. Stampe 1972:581.

[5]Ingliding diphthongs are laxness diphthongizations in his framework, whereas the other two diphthong types result indirectly from the diphthongization of some tonality or sonority feature: cf. below (11) (12) for some discussion. -- Other views of diphthongization as glide insertion (e.g. Harris 1969:161-3 for Spanish, or Haudricourt-Juilland 1970:48-57 for Romance) constitute rough descriptions of historical correspondences, but not of actual evolution; thus they cannot assume explanatory function.

[6]For basic information about Romance diphthongization, cf. Lausberg 1963: §§168-82: this is also the source of the Romance illustrations unless otherwise indicated. Cf. also Spore (1972) for discussion of different approaches to diphthongization in the history of Romance linguistics.

[7]Only conveniently representable examples have been included in these illustrations; e.g. VLt. véntu yields in OFr. vànt due to the nasal consonant and thus is not topical in this context. The SIt. dialects show both rising diphthongs such as yé and high monophthongs or ingliding diphthongs such as í: or í:ə in response to unlaut environments. Only the rising diphthongs have evidential force in this context due to the imprecise information available on the history and present conditions in these dialects, especially for what concerns the ingliding diphthongs.

[8]In the context of the fact that Castilian has generalized diphthongization of é, ó in any environment, whereas Old Provençal does not have any diphthongization of é, ó outside of this situation. (Cf. (6), (7) above).

[9]The case of VLt. u > ü in various Romance languages interferes with what might otherwise be a diphthongization: even this change has repeatedly been identified as a diphthongization: cf. Stampe (1972:587). The evidence is in general negative for this interpretation. Cf. also LYS (100, 194-7) for some discussion of the Romance situation, and in particular the high vowels.

[10]Cf. especially Schürr 1918-19, 1956a, 1956b, 1962. The following account is based mainly on Schürr 1956b. Cf. Spore (1972:290-5) for a negative assessment of Schürr's position within Romance linguistics.

[11]The fact pointed out earlier (cf. (8) above) that umlaut had as its result not only diphthongs but also raised monophthongs is interpreted by Schürr to mean that these monophthongs are monophthongized reflexes of earlier rising diphthongs, he supports this hypothesis with explicit data from Romagnolo (1918-19.II:131-88). An interesting claim deriving from

this position is that once diphthongization has affected a vowel it will not be possible for this vowel to revert to its exactly same monophthongal form; remonophthongization implies the application of some assimilative processes (e.g. ę > ... > yę > ye > e). Thus in the case of Tuscan dialects, especially modern Florentine, where the earlier diphthongization of ǫ́ > wǫ́ is now lost and ǫ́ is restored, the change can be observed not as a tendential monophthongization (which should yield some other result) but as an outright deletion of w (cf. De Mauro 1963:390).

[12] The situation for ǫ́, ó is the same mutatis mutandis. The postulated tenseness of é and ę́ is not ascertainable independently: the fact that these vowels did occur long and stressed in the same environments (open syllable) after the collapse of Classical Latin vowel quantity distinctions seems to support the position taken here.

[13] The judgments determining marked vs. unmarked values for the single features follow the examples set in Andersen (1972); even if the linear order of the polarized features should be reversed, there is no way that a rising diphthong could be derived from ę.

[14] Other problematic aspects of Andersen's approach are his treatment of the difference between the various types of diphthongs (cf. fn (5) above); the basic inability to explain any chainshift phenomena if they do occur (cf. however the advantage of this position indicated in the text); and the virtual exclusion of triphthongs as natural extensions of diphthongs (cf. below for Charmey wǫ́ > wáǫ ; or OFr. ęlC > ǫ̧C > ęaǫC > ęauC > ꬲauC > ęoC > oC ; cf. Pope 1952:§§388,502,540).

[15] The phonetic transcription in the right margin follows the system used in this paper; the other data are given according to Séguy (1954): é, ó = mid vowels; è, ò = low vowels: length can be . (short), : (long), :: (overlong); these length symbols precede the relevant segment (308).

References

Alarcos Llorach, E. 1968. Fonología española. 4th ed. Madrid: Gredos

Andersen, Henning. 1972. Diphthongization. Language 48.11-50

De Mauro, Tullio. 1963. Storia linguistica dell'Italia unita. Bari: Laterza

Fromkin, Victoria A. 1971. The non-anomalous nature of anomalous utterances. Language 47.27-52

Harris, James W. 1969. Spanish phonology. Cambridge: MIT Press

Haudricourt, André, and Alphonse Juilland. 1970. Essai pour une histoire structurale du phonétisme français. 2nd ed. The Hague: Mouton

Gauchat, Louis. 1905. L'unité phonétique dans le patois d'une commune. Halle a.d.S.: Niemeyer

Hermann, Eduard. 1929. Lautveränderungen in den Individualsprachen einer
    Mundart. Nachrichten von der Gesellschaft der Wissenschaften zu Göt-
    tingen; Philologisch-historische Klasse 1929.195-214

Labov, William, Malcah Yaeger, and Richard Steiner. 1972. A quantitative
    study of sound change in progress. NSF Report, University of Pennsyl-
    vania

Lausberg, Heinrich. 1963. Romanische Sprachwissenschaft. Vol.I: Einlei-
    tung und Vokalismus. Berlin: de Gruyter

Menéndez Pidal, Ramón. 1950. Orígenes del español. 3rd ed. Madrid: Es-
    pasa-Calpe

Miller, Patricia D. 1972. Vowel neutralization and vowel reduction. CLS
    8.482-9

---------------- . 1973. Bleaching and coloring. CLS 9.336-97

Pope, M.K. 1952. From Latin to Modern French with especial consideration
    of Anglo-Norman. 2nd ed. Manchester: University Press

Rohlfs, Gerhard. 1949. Historische Grammatik der italienischen Sprache
    und ihrer Dialekte. Vol.I: Lautlehre. Bern: Francke

Schürr, Friedrich. 1918-19. Romagnolische Dialektstudien. Sitzungsberich-
    te der Wiener Akademie der Wissenschaften, Historisch-Philosophische
    Klasse, 187.1-150(=I), 188.1-254(=II)

---------------- . 1956a. Nuovi contributi allo studio dei dialetti ro-
    magnoli. Rendiconti dell'Istituto Lombardo di Scienze e Lettere, 89-
    90.121-45,313-33,455-75

--------------- . 1956b. La diphtongaison romane. Revue de linguistique
    romane 20.107-248

--------------- . 1962. Toskanische und romanische Diphthongierung. Zeit-
    schrift für romanische Philologie 78.479-93

Séguy, Jean. 1954. A propos de la diphtongaison de e et o ouverts.
    Annales du Midi 66.307-11

Spore, Palle. 1972. La diphtongaison romane. (Etudes romanes de l'Uni-
    versité d'Odense, 3) Odense: University Press

Stampe, David. 1969. The acquisition of phonetic representation. CLS
    5.433-44

------------ . 1972. On the natural history of diphthongs. CLS 8.578-90

Straka, Georges. 1959. Durée et timbre vocaliques. Observations de pho-
    nétique générale, appliquées à la phonétique historique des langues
    romanes. Zeitschrift für Phonetik und allgemeine Sprachwissenschaft
    12.276-300

STUDIES IN THE LINGUISTIC SCIENCES

The following issues of SLS have already been published.